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THE OTTAWA TRADE AGREEMENTS*

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MACDONALD COLLEGE

The trade agreements negotiated at Ottawa in the summer of 1932 and ratified toward the end of the year were a movement toward freer trade arrangements between the countries comprising what is now frequently termed the British Commonwealth of Nations and at the same time a movement toward greater restrictions on trade between these and foreign countries.

These agreements were therefore a compromise between the theories of freedom and restriction in matters of trade. Containing both principles in greater or lesser degree this trade arrangement enables the critic to find reflected in it largely what appeals to him most strongly. Before considering even the object of these agreements, it is perhaps pertinent to recall that most trade arrangements between different sections or between nations must mean restriction in some places in order to provide for expansion in other directions; that trade restrictions are usually considered advantageous when they appear to work in our favor and only considered entirely obnoxious when they appear to work against us; finally that trade restrictions of all varieties frequently fall far short of their objectives. The latter is the reason why the word *appear* to work favorably or otherwise would seem to be necessary. Repercussions from trade arrangements are frequently surprising and sometimes somewhat slow in development. Hence it is as yet probably too early to present a fair picture of the results of these arrangements though some results are already indicated. One point, however, which may be now discussed and one which is perhaps sometimes overlooked was the necessity of the arrangement.

* Contribution from the Faculty of Agriculture of McGill University, Macdonald College, Que., Canada. Journal Series No. 51.

To present the necessity of these trade arrangements might easily be a long story but suffice it to say at this stage that the time, the prevailing situation and the outcome to a great degree conditioned one another. The year 1932 was somewhat epochal in at least three ways. It marked the low point of one of the worst depressions we have had so far. No doubt partly on this account many countries throughout the world reversed their policies, not only in regard to trade but in regard to many other things, and generally demonstrated their desire for greater regimentation of business and a nearer approach to what is commonly termed planned economy. The result was a great impetus to trade restrictions that had been developing rapidly during the past few years. Finally and because of this to a certain extent, there developed the Ottawa Trade Agreements. Whether these trade arrangements simply marked the zenith in the interferences with trade between nations or marked the definite departure of Britain from a policy of comparatively free acceptance of world goods remains to be seen. If the former, as many of us hope, present trade restrictions may be somewhat temporary; if the latter as some of us suspect, then the year 1932 indeed marked the end of an epoch.

It may not be without significance that the change in fiscal policy of Britain occurred just a century later than the year that demos was required to accept a greater degree of responsibility as to just how things should be accomplished. It may be that one century is somewhat too short a period to demonstrate whether or not the particular method of running things recently evolved is generally acceptable. There is indeed room for genuine difference of opinion as to whether governments in general should take a more active part in business than was the custom in the nineteenth century. Yet there can be no dispute as to the direction of the present movement. That direction is toward greater interference with business in general and trade in particular. And two dates that are particularly significant for this discussion are the date of the repeal of the corn laws in Britain in 1846 and the reestablishment of the corn laws in Britain in 1932. The British Colonies of North America which later became Canada enjoyed a preference in the British market prior to 1846. Since 1932 Canada, in common with the other British Overseas Dominions, enjoys a preference in the British market. To make this preference possible required the departure of Britain from its policy of comparatively free acceptance of world goods and

particularly world food products which had prevailed since 1846 or for 86 years.

We say comparatively free acceptance of world food products. There have always been methods by which Britain could ensure a certain measure of protection without sacrificing the warmly cherished theory of freedom of trade. An example is the cattle embargo for fear of foot and mouth disease imposed even against cattle admitted to be healthy. Another is the custom of refusing to import potatoes when domestic supplies were abundant for fear of importing disease. Yet granting these exceptions, the change in policy in 1932 in regard to the acceptance of world food supplies is really epochal.

Virtue of a Necessity

The Ottawa Trade Agreements of 1932 became definitely necessary, particularly as an outlet for exports of farm products, on account of the fading of foreign markets in the last half of the past decade. Up to the year 1930 this increased difficulty in entering foreign markets with food exports was largely confined to a return of those countries, which had been temporarily[1] compelled to increase dependence on distant sources of food supplies, to their earlier policy of self-sufficiency. This was notably the case with France, Germany and Italy. After 1930 a new motive prompted a more determined effort to prevent importation of food supplies. This was the drop in "world" prices of raw products in general and prices of farm products in particular. An attempt to prevent so-called world prices from becoming at all general resulted in a reversed fiscal policy with regard to food importation in many countries normally importers of food products and also in the adoption of various ingenious devices to prevent price collapse not only in countries which were both exporters and importers but also in countries normally on balance exporters of food supplies.

By 1932 Britain, Belgium, the Netherlands, Denmark, and Switzerland were almost the only European countries content to depend upon distant sources of food supplies. Even these had or have since that time adopted certain measures to restrict their dependence on imports and increase domestic supplies. By 1932 the importance of Britain as an outlet for food exports was greatly increased as compared with the position maintained dur-

[1] *World Trade Barriers in Relation to American Agriculture;* Senate Document No. 70; Government Printing Office, Washington; pp. 42-43.

ing the decade of 1920 to 1930. In 1932 Britain, always the chief market for surplus food supplies from all corners of the earth, was almost the only country allowing "world prices" for farm products to prevail generally. There were exceptions to this rule at that time but they were of somewhat minor importance. In that year, however, a remarkable change of policy took place. The author spent part of 1932 in Britain and while there witnessed the raising of the duty on imported potatoes by a pound sterling per ton with no more discussion apparent than might occur over the issue of a new postage stamp.

In 1932, moreover, Britain was not only the only important receiver of farm products which were generally being "dumped" but also was receiving these farm products in large quantities from many countries which were not taking any important quantity of British goods. By dumped goods we mean those goods the export of which was directly or indirectly bonused. The bonus of exports of farm products compelled Britain to turn toward protection. It also prompted an examination of the possibility of discontinuing the one-way traffic with foreign countries indicated in the following table.

TABLE 1. BRITISH TRADE 1930[a]

	Imports from	Exports to
U. S. A.	£153,496,858	£39,933,615
Argentina	56,665,769	25,676,179
Denmark	54,117,596	10,990,190
Holland	39,523,812	23,009,498
Belgium	38,015,736	21,578,948
Soviet Union	34,235,002	9,291,307
Sweden	22,580,948	10,935,670
Total	£398,635,721	£141,415,407

[a] Ruston, A. G.: The Agricultural Depression and the Way it is Being Met: *Journal of the Farmers' Club*, Whitehall Court, London; p. 3; March 1933.

These adverse trade balances consisted largely of food imports which could be supplied in much greater degree than then prevailed from the overseas dominions, at that time somewhat burdened with surpluses of farm products for which markets were hard to find. Could any more reasonable solution be found than provision for expansion of intra-empire trade? Certainly there were some of these countries which had for various reasons certain definite claims on the British food market. Argentina, for instance, for many years an outlet for British capital, must be allowed to pay interest and principal in goods if collections are to be made. It is therefore only reluctantly that any trade restrictions are imposed by Britain against Argentina as has been evidenced by the special trade agreement which has been made by Britain with that country since the Ottawa arrangements of

1932. Another country with which Britain has made a trade treaty since that year is Denmark. Britain has depended for some time on that country for supplying the major portion of three leading imports, butter, bacon and eggs. Recently New Zealand and Australia, also outlets for British investments, have been contributing an increasing proportion of dairy products, beef and practically all of the mutton and lamb imported into Britain. These grazing countries are (with Argentina) the potential sources of products of grazing lands. Thus far they have not developed an export trade in bacon and poultry products. Britain has been dependent on foreign countries for the major portion of the large quantities of bacon and poultry products imported.

The potentialities of the Ottawa trade arrangements of 1932 for Canada were by these conditions made fairly clear. Canada, adapted to the production of small grains devoting some 25 of its 60 million acres annually to wheat, is not much of a grazing country taken as a unit. Britain may secure its products of grass countries from within the Empire. Dependence on foreign countries was considerable for wheat, bacon and poultry products. As long as other countries were willing and able—through deferred payments made possible by the free flow of credit internationally—to absorb the surplus grain (wheat chiefly), Canada was willing to expand production along this line. As foreign markets for wheat dwindled and the British market for other things expanded much more rapidly than for grains the Ottawa arrangements became more or less of a necessity. In November 1932 the author wrote:

"The development of intra-imperial trade has been to a certain degree forced upon the British Commonwealth of Nations by the fiscal policies of other nations. It is at the moment the line of least resistance within that commonwealth of nations."[2]

The Imperial Economic Conference 1932

The Ottawa Conference of 1932 followed the Imperial Economic Conference of London held two years earlier where the plan of preferential tariffs within the Empire had been advocated. The change in policy represented by the adoption of a protective policy by Britain in the early part of the year made the scheme of preferential tariffs possible. Delegates from Britain, Australia, New Zealand, South Africa, Newfoundland, Irish Free State, India, Southern Rhodesia and Canada negotiated eleven trade agreements.

[2] *Intra Empire Trade*; Macdonald College Journal Series No. 20.

Organization

The conference was divided into the following sub-committees:

1. Promotion of Trade within the Commonwealth
2. Customs administration
3. Commercial relations with Foreign Countries
4. Monetary and Financial questions
5. Methods of Economic Cooperation.

The Committee on Promotion of Trade within the Commonwealth

Agenda

(a) Recognition of the principle of reciprocal tariff preferences within the Commonwealth.

(b) General application of existing and future tariff preferences within the Commonwealth.

(c) Extension to other parts of the Commonwealth of tariff advantages accorded foreign countries.

(d) Determination of percentage of 'Empire Content' necessary to secure preferential tariff treatment.

(e) Export bounties and anti-dumping duties within the Commonwealth.

The Committee decided to form six groups made up of representatives interested in each of—

1. Dairy products and poultry and eggs
2. Meats
3. Fruit and vegetables
4. Cereals and flour
5. Metals and minerals
6. Tobacco

Agreements

Promotion of Trade Within Empire

Article 1. Continuance after Nov. 15, 1932, of entry free of duty for three years of dairy and poultry products.

Article 2. United Kingdom undertakes to impose on foreign imports customs rates as follows:

Wheat in grain	2s. per quarter
Butter	15s. per cwt.
Cheese	15% ad valorem
Apples & pears	4s. 6d. per cwt.
Apples, canned	3s. 6d. per cwt.
Dried fruits	increases from 7 to 10s. 6d. per cwt.
Eggs in shell	
Not exceeding 14 lbs. per gt. hundred	1s. per great hundred
Over 14 lbs.	1s. 6d. per gt. hundred
Over 17 lbs.	1s. 9d. per gt. hundred
Condensed milk	5s. per cwt.
Copper unwrought	2d. per lb.

Article 3. Retention by United Kingdom of the 10% ad valorem duty imposed by Section I of the Import Duties Act 1932 on—

Timber	Asbestos	Zinc
Fish, fresh or canned		Lead

Article 4. Duties on wheat, copper, zinc or lead may be removed at any time if Empire producers are unable or unwilling to offer these commodities at prices not exceeding world prices and in quantities sufficient to supply requirements of United Kingdom consumers.

Article 5. United Kingdom undertakes to modify conditions governing importation of live cattle.

Article 6. United Kingdom undertakes to regulate quantitatively the amount of bacon and hams coming on the market, allowing Canada a maximum quota of 2,500,000 cwt. per annum.

Article 7. Continuance of present preference on tobacco for ten years.

Article 8. United Kingdom undertakes to grant Empire countries preferential tariffs to certain specified non-self-governing colonies:

Applicable to	*Commodity*	*Margin of preference*
(Fairly general)	Rubber boots	One shilling per pr.
(Fairly general)	Motor vehicles	20% ad valorem
(Fairly general)	Hosiery, artificial silk	6d. per pr.
(Fairly general)	Hosiery, silk	9d. per pr.
Barbados, Bermuda & Trinidad only	Electrical appliances	15% ad valorem
—do—	Bacon & Ham	1¢ per lb.
(Fairly general)	Butter	3¢ per lb.
Barbados, Jamaica & Trinidad	Condensed milk	10% ad valorem
Barbados & British Honduras	Potatoes and onions	2s. per cwt.
Barbados	Oats	9d. per cwt.
Bermuda & Jamaica	Hardware	10% ad valorem
Bermuda	Eggs	4¢ per doz.
	Canned meat	10% ad valorem
	Canned fruit and vegetables	15% ad valorem
	Furniture	10% ad valorem
Jamaica	Apparel (other than hosiery)	10% ad valorem
	Wood and timber	10% ad valorem
Ceylon	Bacon and ham	10% ad valorem
	Canned fruit and vegetables	15% ad valorem
	Canned fish	15% ad valorem
Cyprus	Butter, cheese, tinned fish and timber	One-third of duty rather than one sixth
Malay States	Condensed milk	10% ad valorem
	Paper	10% ad valorem
	Canned fruit and vegetables	15% ad valorem
	Canned fish	15% ad valorem
	Electric batteries	15% ad valorem
	Confectionery	10% ad valorem
Fiji	Timber	2s. per 100 ft.
Malta	Wheat flour	2s. per 100 kilograms

Applicable to	*Commodity*	*Margin of preference*
Mauritius	Bacon and ham	5 rupees per 100 kilograms
	Cheese	10% ad valorem
	Canned fish	15% ad valorem
	Household appliances	15% ad valorem
Northern Rhodesia	Electric batteries	15% ad valorem
	Wooden boxes	10% ad valorem
	Wood, unmanufactured	10% ad valorem
	Newsprint and wrapping paper	10% ad valorem
	Motor trucks	10% ad valorem
Sarawak	Condensed milk	10% ad valorem

Articles 9-15. Include undertakings by the Government of Canada to revise and increase the British preference, restricting protection to Canadian industries to those reasonably assured of opportunity, provide United Kingdom producers full opportunity of competition, constitution of a tariff board to be appealed to on request and that no existing duty on U.K. goods shall be increased except after enquiry and report by Tariff Board.

Article 16. Undertaking by Government of Canada to comply with recommendations of committee on customs administration.

Article 17. Undertakes to consider discontinuing exchange dumping duty imposed against United Kingdom.

Article 18. Modification of existing regulations governing importation of pedigree stock from Great Britain to Canada.

Articles 22-23. State that trade agreement between the United Kingdom and Canada shall continue five years and proposals to vary the terms may be the subject of consultation between the two governments.[3]

Customs Administration

1. Avoidance of uncertainty as to amount of import duty.
2. Reduction of friction and delay to a minimum.
3. Provision of facilities for prompt settlement of disputes.

Commercial Relations with Foreign Countries

1. General policy that no treaty obligations in the future should be allowed to interfere with any mutual preferences within the Commonwealth.

2. Foreign countries with existing most-favoured-nation treatment accorded particular parts of the commonwealth could not be allowed to override such obligations with regional agreements.

Monetary and Financial Questions

Agreeing that a rise in prices was desirable, most dependent on increased trade, impossible of achievement through monetary policy alone, and an international problem; the committee advocated:

1. Stability of exchange rates over as wide an area as possible.
2. Avoidance of wide fluctuations between sterling and gold.
3. Ultimate aim restoration of a satisfactory international monetary standard.

This somewhat condensed report reveals clearly the prominence given to agriculture in the Ottawa trade agreements. In-

[3] Trade Agreement between Canada and United Kingdom.—*Commercial Intelligence Journal*, No. 1502, Nov. 12, 1932, pp. 752-758.

deed the real reason for the conference, as for the proposal for imperial preference at London two years earlier, was to secure more attractive markets for exporters of farm products. This was emphasized in the chairman's address at the opening of the conference:

"In the past, Canada's manufactured products have enjoyed a measure of protection, though at times it is claimed by some a not wholly adequate measure of protection, in the home market. Our natural products have enjoyed little or no fiscal advantage over their foreign competitors in Empire markets. It is now our hope to secure it for them. Inasmuch as the ideal application of the principle of protection involves an equalization of benefits thereunder as between manufactured and natural products, it is the desire of this Government to effect that equalization and to find a way for our exporters into Empire markets by giving the exporters from those markets a way into ours."[4]

It was also pointed out at the conference that there were two methods of securing increased trade within the Empire: one was lowering duties between countries within the Empire and the other by raising tariffs against foreign countries. The British attitude on this point is worthy of note.

"There are two ways in which increased preference can be given—either by lowering barriers among ourselves or by raising them against others. The choice between these two must be governed largely by local conditions, but subject to that, it seems to us that we should endeavor to follow the first rather than the second course. For however great our resources, we cannot isolate ourselves from the world. No nation or group of nations, however wealthy and populous, can maintain prosperity in a world where depression and impoverishment reign. Let us therefore aim at the lowering rather than the raising of barriers, even if we cannot fully achieve our purpose now, and let us remember that any action we take here is bound to have its reactions elsewhere."[5]

The objective of securing a preference in the British market for exports of farm products from surplus producing countries within the Empire in exchange for increased preferences for goods from Britain was in a measure achieved. Preferences on British goods already prevalent were increased in Canada by adding some two hundred items to the free list and the preference in the British market for exporters was secured by provision for departure by Britain from the long prevailing policy of comparatively free food importation. This was provided for in article two and was necessary in order to secure the preference in the British market for the overseas exporters of farm products. This preference was arranged in various ways for different commodities. It was brought about in regard to wheat

[4] Premier R. B. Bennett; Report Imperial Economic Conference 1932; p. 69.
[5] Right Honourable Stanley Baldwin; Report Imperial Economic Conference 1932; p. 74.

by the imposition of a duty of 6d. per bushel on foreign wheat.

Duties were also imposed against foreign imports of fruit and vegetables and poultry, and some of those which had prevailed prior to that time were raised in order to ensure the preference. On the other hand, preference for Empire goods was secured in the case of butter, cheese, bacon and meats by restricting imports from foreign countries by reducing the quotas allowed. Increased duties and decreased quotas from foreign countries have taken place since the Ottawa agreements and the present trend appears to be to increase domestic production in Britain and thereby reduce dependence on distant sources of food supplies either Empire or foreign.

The revision of quotas from time to time as well as the increase in tariffs on imports since the date of those agreements show the importance of the length of their duration and the possible developments when the time for their revision arrives which in some cases will be within the next two years. The general aim in these agreements would appear to be important. The policy in Britain appears to be, first, to "Buy British," second, to "Buy Empire Goods" and finally, to restrict foreign purchases as far as possible to those countries where capital from Britain has been invested or to those where British goods may be sent. There seems small need to elaborate on such a sensible and necessary arrangement.

Effect Upon Trade

The trade arrangement within the Empire started in 1932 and still proceeding, as new arrangements are frequently being made, had the advantage of working with the trend of the times as other markets were dwindling at the time of these arrangements. This fact makes any summation of the influence of these pacts on trade difficult and to a certain extent inaccurate. For the reason that intra-empire trade was increasing in importance before the imperial conference in 1932, and, as this trend foreshadowed, intra-empire trade was bound to increase, agreements or no agreements, as other markets were being closed and the British market was then and remains today and for the immediate future the easiest of access of any market for imports, especially for farm products. Nevertheless some figures are already available indicating the impetus which has been given intra-empire trade since these arrangements were made. (Table 2).

The record presented in Table 2 is condensed. The complete picture, except for the last year, may be obtained from the author-

TABLE 2. PERCENTAGES CANADIAN TRADE[a]

	United States	United Kingdom
	Exports	
1914	37.9	49.9
1920	37.4	39.5
1930	46.0	25.2
1931	43.7	27.4
1932	40.8	30.2
1933[b]	30.2	38.9
1934[c]	33.6	39.3
	Imports	
1914	64.0	21.4
1920	75.3	11.9
1930	67.9	15.2
1931	64.5	16.5
1932	60.8	18.4
1933[b]	57.2	21.2
1934[c]	53.7	23.7

[a] *Canada Year Book* 1933, p. 520.
[b] Preliminary figures.
[c] *Commercial Intelligence Journal*, Ottawa, May 5, 1934; Volume L, No. 1579, p. 727.

ity cited. While the years are chosen arbitrarily it would appear that the record is sufficient to show not only the possibility of increased trade with the United Kingdom but also the tendency in that direction.

It may be noted that in pre-war days it was customary for Canada to export to the United Kingdom and import from the United States, leaving those two countries to balance their accounts as they saw fit. This tendency increased during post-war years until 1930. Since that year the trend has been reversed until conditions almost parallel those of 1914. There is still an excess of imports over exports with the United States and an excess of exports over imports with the United Kingdom as shown by the following figures:

Fiscal year 1934[a]

Exports to	Imports from	Balance
	United States	
$199,358,088	$238,187,681	—$ 38,829,593
	United Kingdom	
$228,319,538	$105,078,721	+$123,240,817

It is with farm products that we are particularly concerned and the following table gives the record for the past three fiscal years of the trade in the two classifications, namely agricultural and vegetable products and animals and animal products added together. This does not give an accurate account of trade in agricultural products as some farm products are included under textiles yet these figures furnish a rough estimate.

The Canadian fiscal year ends March 31. The Ottawa agree-

[a] *Commercial Intelligence Journal*, Ottawa, May 5, 1934, Volume L, No. 1579, p. 727.

ments came into force in November 1932 and in consequence the fiscal year of 1933 must be considered fairly neutral in regard to these agreements as less than half that year was subject to them. Therefore a comparison of 1932 and 1934 is the most useful to estimate the influence of the trade agreements.

Obviously there are many ways in which these figures may be analyzed and it is not the intention to linger long in discussion

TABLE 3. CANADIAN TRADE IN FARM PRODUCTS

Fiscal years 1932-1934
(Figures in millions)

	Imports			*Exports*		
	Total	*U. S.*	*U. K.*	*Total*	*U. S.*	*U. K.*
	$	$	$	$	$	$
1934[a]	111	41	23	281	41	157
1933[b]	104	39	20	258	18	144
1932[c]	153	59	33	273	34	131

[a] *Commercial Intelligence Journal*, Ottawa, May 5, 1934, Volume L, No. 1579, p. 727.
[b] *Ibid.*, Volume XLVIII, No. 1527, May 6, 1933, p. 624.
[c] *Ibid.*, Volume XLVI, No. 1475, May 7, 1932, p. 755.

of them as to a great extent they speak for themselves. In passing, however, it may be pointed out that:

In 1932 countries other than the United Kingdom and United States furnished roughly 40 per cent of both imports and exports while in 1934 the proportions of the total were 43 per cent of imports and slightly less than 30 per cent of the total exports of these commodities. The increase in imports from these other countries was no doubt due partly to the increased trade developed with countries within the Empire, not counting the United Kingdom. The decline in exports of these commodities to other countries reveals the increased importance of the United Kingdom recently as a market for farm products. In other words there is noticeable in these figures a shift in trade recently from the three-cornered trade of exporting these goods to Britain and importing goods of similar classification from United States, a trade prevalent for a long time, to increased imports from other countries of the Empire.

This accounts for the figures showing an increase in exports to the United Kingdom and reduced imports from United States. Yet the increase in exports to United States in 1934 over 1932 is at a greater rate than exports to the United Kingdom. This faster rate of increase may be due to the low point reached in the 1932 fiscal year and the somewhat erratic nature of the exports of farm products which may be gathered from Table 4.

Referring back to Table 2, it is necessary to point out that while trade reports between United States and Canada record

the same figure for agricultural and vegetable products and animals and animal products there is a balance in favor of the United States of something over half a million dollars for the year ending March 1934. This is a nearer approach to a balance in these classes than has been usual, as since 1891 the cumulative figure of excess of imports over exports by Canada to the United States of these goods amounted to a total of over 574 million dollars. This was made up of an excess of imports over exports of agricultural and vegetable products by Canada of $994 million and an excess of exports over imports of animals and animal products of $420 million, leaving the net balance of $574 million. It is generally known that United States exports more merchandise to Canada than it imports. Since 1891 this excess amounts to a total of some five and three quarter billion,[7] not

TABLE 4. EXPORTS OF FARM PRODUCTS TO UNITED STATES
(by value, figures in millions)[a]

Nine Months ending March	
1921	$155
1930	39
1932[b]	8
1933	3

[a] *Commercial Intelligence Journal*, Ottawa, April 28, 1934, Vol. L, No. 1578.
[b] *Ibid.*, April 29, 1933, Volume XLVIII, No. 1526.

very far from the estimated amount of American capital invested in Canada, which is not surprising as goods may be paid for in goods or payment deferred by negotiating loans. It is not so generally known, however, that this trend exists between the two countries even in farm products. These figures reveal what a good customer of the United States Canada has been in the past. What the future record will be will depend not only upon trade regulations between the two countries but also markets available elsewhere and the freedom or lack of flow of capital internationally. Before discussing future prospects it would appear necessary to point out briefly the influence of the trade agreements on some specific lines.

The farm products which have apparently received the greatest benefit from the preference so far have been bacon, fruit and to a lesser degree poultry products. The 6d. per bushel preference on wheat may eventually be important but it would be difficult to convince the wheat grower or shipper at the moment that wheat from foreign countries is not being imported by Britain in as large quantities as though no preference existed. In other words, under the present conditions the exporting country is pay-

[7] Data from Trade of Canada Fiscal Year 1933, pp. 12, 21, 24.

ing the duty for the privilege of selling. Apple exporters from Canada have benefited by the preference during the past season. It is in bacon that the greatest change has occurred. British bacon imports are handled by quota. A definite quota far in excess of previous shipments or prospective supplies was allotted to Canada.

This record appears to speak for itself as far as the advantages to Canada of the trade agreements are concerned. Just how and why the price in Britain makes this price possible with no duty imposed is more difficult to explain. The explanation in-

TABLE 5. PRICES OF LIVE HOGS[a]

	Chicago (Av. cost of purchases) per cwt.	*Winnipeg* (Weighted) per cwt.	*Toronto* (Weighted) per cwt.
March 1934	$4.56[b]	$8.00	$9.25
Feb. "	4.21	8.40	9.65
Jan. "	3.39	7.30	8.10
Dec. 1933	3.22	5.40	6.50
Nov. "	4.09	5.25	6.25
Oct. "	4.48	4.95	5.80
Sept. "	4.14	5.65	6.85
Aug. "	4.02	5.30	6.60
July "	4.39	5.20	6.35
June "	4.45	4.80	5.70
May "	4.50	5.00	5.75
April "	3.75	6.05	6.80
March "	3.83	4.35	5.15
Feb. "	3.45	2.80	3.85
Jan. "	3.11	2.65	3.80
Dec. 1932	3.08	2.85	4.00
Nov. "	3.33	2.95	3.95
Oct. "	3.71	3.60	4.55

[a] Dominion Bureau of Statistics, Ottawa; Monthly bulletins of agricultural statistics.
[b] One week only.

volves the British marketing act under which machinery was set up as recommended by the Commission to stimulate domestic production by restricting imports through the quota system and setting the price of the domestic product from time to time according to the price of feedstuffs.[8]

In 1932 hog prices reached such a disastrously low level in Canada that the supply threatened to dry up. And this notwithstanding that per capita domestic consumption was 19 pounds higher than in 1929. The improvement in price since the trade agreements got well under way has stimulated production somewhat and as domestic consumption has fallen off with rising prices exports have increased so that while the 1933 exports reached 71,000,000 pounds the first four months of 1934 recorded exports of 45,000,000 pounds. Though the bacon quota accorded Canada has two more years to run, some anticipate a voluntary

[8] Report of Reorganization Commission for Pigs & Pig Products, London, H. M. Stationery Office, 1932.

readjustment as has been recently entered into in the matter of cattle.

Prices of live hogs in Canada have been running about twice those in United States since March of this year to the time of writing (June), yet this divergence cannot be looked upon as at all permanent. However with British pig feeders licensed and the price set definitely and Danish quota carried to the individual feeder, the hog cycle cannot be expected to be just what it used to be. No doubt it will continue but it will likely be somewhat different from what it has been in the past. Canada has this advantage, that it alone of the Empire countries, except the Irish Free State, that has an important export trade in bacon.

There are other advantages to Canada from the trade agreements which will only be mentioned here. Among them have been increased exports of timber and copper. During April 1934 Canada became for the first time the leading supplier of timber for the British market. For the first four months of 1932 Canada supplied one-eighteenth of the total, in the same period of 1933 one-eighth, and in the first four months of 1934 one-third.[9]

It might be inquired what advantage in the Canadian market has Britain received in compensation. There are two important gains, namely in the case of coal and textiles. Canada imported $26,000,000 in textiles in the fiscal year 1933 and $35,000,000 in the fiscal year 1934. In 1930 Britain supplied 46.6 per cent of the imports and in 1933, 62.0 per cent.[10] Exports of coal to Canada from Britain increased from 906,000 tons in 1931 to 1,722,000 tons in 1933.[11]

The trade agreements have not been in force for a sufficient time to afford the data necessary to give a detailed picture of results in all phases. The material presented here may, however, reveal some significant results particularly in regard to agriculture.

Future Prospects

The term of the Ottawa agreements varies with different commodities. For tobacco the preference is definitely a ten-year agreement. The majority of the items mentioned have a five-year tenure. Some, including dairy products, run three years only and must be revised within two years. Future revision is dependent upon the development not only of fiscal legislation of foreign coun-

[9] *Gazette*, Montreal, June 8, 1934.
[10] *Gazette*, Montreal, June 8, 1934.
[11] Sir William Clark, High Commissioner for the United Kingdom at Ottawa. Address: "Progress and Problems of Empire Trade"; before the Canadian Manufacturers' Association, June 7, 1934.

tries but also on the requirements of the United Kingdom as already intimated by revision of quotas.

This necessitates an examination of Britain's requirements in farm products. In this connection it is interesting to note that one of the lines of international trade which has expanded during the depression when volume is considered is the supplying of Britain with food. This is set forth in the following table of consumption of food in Britain for the year 1932 as compared with the average of 1924 to 1927.

TABLE 6. PER CAPITA CONSUMPTION[a]

		Britain	
		1924-27	1932
Beef and veal	lbs.	69.5	62.5
Mutton and lamb	"	25.5	30.5
Bacon	"	20.5	30.0
Ham	"	4	3
Pork	"	12.5	14
Lard	"	8.5	7.5
Rabbits	"	2	2
Poultry	"	3.75	5
Milk	gals.	16	18.5
Butter	lbs.	15.5	21.75
Margarine	"	12	9.5
Cheese	"	9.5	9.75
Eggs		113	150
Cream	pint	⅔	¾
Condensed milk	lbs.	8	9.5
Bread	4-lb. loaves	37	37
Flour	lbs.	99	97
Fish	"	40.75	44.5
Sugar	"	84	92
Tea	"	9.5	10
Coffee	"	0.75	0.75
Cocoa	"	2.5	3.75
Potatoes	"	187	200
Fruit	"	89	106

[a] Feavearyear, A. E. "The National Expenditure"; *The Economic Journal*, London, Volume XLIV, No. 173, pp. 33-47.

Conclusions of the examination of the expenditure of the national income include—

"The improvement in the average diet in the year of deepest depression as compared with the position seven years earlier is beyond doubt. The drawbacks of our dependence upon imported food are often pointed out; but in the past two years the much lower level of food prices compared with the prices of manufactured goods has been one of the principal reasons for the comparatively happy position of this country. One wonders what might have happened in some of the depressed areas of Great Britain had this cheap food not been available."[12]

The British by improving their diet during the depression have increased imports of both butter and bacon enormously, establishing a record for importation in both these lines in 1932. This was made possible by the extremely low prices. Now an endeavor is being put forth to increase domestic production and reduce both foreign and Empire quotas. How far this move may proceed is impossible to conjecture at this time but one thing is prob-

[12] *Ibid.*, p. 47.

able and that is that Britain will remain, in the immediate future at least, the most important if not almost the only market for export farm products.

The obvious reason for increased consumption of food products in Britain and increased imports in some lines has been the very low price. Now that prices in some lines have risen some reduction in volume of imports and hence exports of farm products may be expected temporarily. This *need* only be temporary as the nearer the prices of farm products approach the level of other goods and services in general, the greater purchasing power of the farming population—still comprising two-thirds of the world's population[13]—may enable them to buy more of the goods they have been compelled to forego during the past four years. This will increase employment, earnings and purchasing power for farm products.

The Ottawa agreements were a necessary incident in the nationalism which has been recently developed. This nationalism has become intensified during the past four years in an attempt to prevent the prices of farm products from an even greater collapse than occurred. This nationalism as developed in Britain is an endeavor to give the farmer collective bargaining and something of the same type of "shelter" which other industries, even including agricultural labor, have enjoyed for some time. Nationalism appears to have similar aims in other countries. If this nationalism serves to stress *comparative* advantages of trade within a section rather than the *absolute* advantages between different sections it may do considerable good without doing undue violence to the theory of international trade. Commodities exchange most freely when relative prices make this possible. When this condition is generally conceded restrictions on trade may be expected to be less rigorous and trade domestically as well as internationally may be expected to expand on a standard of living which is more uniform than it has been during the past four years when the capacity of the world for farm products in general and food products in particular was insufficient at prevailing prices to permit exchange for enough other goods to keep the purveyors of these other goods employed.

[13] *World Agriculture;* Oxford University Press, 1932, p. 3.

THE PROGRAM PLANNING DIVISION OF THE AGRICULTURAL ADJUSTMENT ADMINISTRATION

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Agricultural Adjustment Administration

The Program Planning Division of the Agricultural Adjustment Administration is concerned with developing a long-time plan for agriculture and pointing emergency adjustment activities towards that plan. It seeks to relate the various activities of the Agricultural Adjustment Administration and of other governmental agencies whose functions affect agriculture into a unified attack on farm problems. It aims to develop production adjustment programs instituted to meet emergency situations into a long-time plan for reestablishing farming on a satisfactory economic basis. The underlying objective is to raise rural standards of living. More immediate objectives include formulating mechanisms to keep production in balance; planning efficient and well-balanced systems of farming for the different agricultural regions; withdrawal from agricultural use of land which cannot be farmed efficiently and putting such land to other desirable uses; and assisting in development of programs of "rural rehabilitation."

Until the Administration was reorganized in January of 1934, the adjustment programs were of an entirely emergency character, developed for particular commodities. Adequate facilities for unifying adjustment were lacking, and the programs were inaugurated with only such coordination as could be given them by Chester C. Davis, then director of the Production Division, General William I. Westervelt, director of the Processing and Marketing Division, and other administrative officers of the AAA. It had already become apparent that both in objectives and in administration a greater degree of coordination was necessary. It was evident also that sooner or later the need for purely emergency measures would cease to exist, and that a coordinated, long-time program of agricultural adjustment would have to be developed, if the Administration was to be a continuing rather than a strictly emergency agency.

To meet these evident needs, the Program Planning Division was provided for in the reorganization of the Administration. Six sections of the Division now are functioning. They are the Land Policy, Production Planning, Import and Export, Agricultural-Industrial Relations, Replacement Crops, and the Rehabilitation sections. A Market Planning section is contemplated.

Functions and Activities of Sections in the Division

The *Land Policy Section* is concerned with the development of a coordinated long-time national plan for the better use of land resources, and its embodiment in programs of action in the various states. Its general functions are to determine the total area of land needed to produce the various agricultural commodities and forest products in the United States; to work with other agencies in designating areas which need to be withdrawn from agricultural production and areas which should be restricted to extensive use, and in determining utilization of areas withdrawn from farming; and in general, to coordinate the program of the Agricultural Adjustment Administration with the government land utilization program.

The section also has agreed to plan and develop specific submarginal land projects under a $25,000,000 fund allotted to the Federal Emergency Relief Administration by the Public Works Administration. The section's nine regional directors, who have immediate responsibility for its program in the particular regions assigned to them, also are serving as regional representatives of the Relief Administration for carrying out the land acquisition program in their respective regions. These services are extended at the request of the Relief Administration.

Under the submarginal land acquisition program, it is proposed to develop a limited number of demonstration projects in selected areas where land now in farms is generally unsuited to agricultural uses, and where families now occupying those lands are unable to obtain incomes sufficient to provide reasonably adequate living conditions even under normal circumstances. As a rule, serious conditions and problems require social and economic readjustment in these areas. The land acquired and retired from cultivation will be put to some other beneficial public use, such as forestry, regulated grazing, public parks, recreation grounds, and fish, game and other wild life preserves. Some of the farm families now occupying lands to be retired will be given an opportunity to relocate on better farms sold to them on a long-time amortized basis. Others will be provided opportunities to make a better livelihood in other occupations.

The Land Policy Section is serving the Relief Administration as a planning agency in the selection and development of agricultural projects contemplated under the submarginal land program. The National Park Service and the Bureau of Indian Affairs in the Department of the Interior will serve in a similar capacity in the planning of park and recreational projects, and

Indian land projects respectively. The Bureau of Biological Survey will plan certain types of migratory waterfowl projects. However, projects of all types will be cleared through the section's regional directors as coordinating officers for the entire program.

The section also is participating in the preparation of a report on land utilization and policy to be presented to the President through the National Resources Board recently created by executive order. The report will include definite recommendations for appropriate action. Agencies within the Department of Agriculture and other federal departments are cooperating in its preparation, under the general direction of an inter-departmental committee, of which the chairman is M. L. Wilson, Assistant Secretary of Agriculture. L. C. Gray, Chief of the Land Policy Section, is director of the report.

The entire program of the section, both as it relates to land planning and submarginal land acquisition, obviously touches closely the interests of the agricultural colleges and experiment stations. Active interest and assistance of these agencies, as well as those of state and other federal agencies, are needed to make a real beginning on a long needed land program.

The primary function of the *Production Planning Section* is to initiate and develop long-time plans for agricultural adjustment programs. The work of this section is concerned primarily with the adjustments in production desirable on super-marginal land in the major agricultural areas, in contra-distinction to the work of the Land Policy Section, which is more concerned with the major uses of land, for agricultural or other purposes, particularly as related to areas of questionable agricultural use.

In formulating such long-time plans for agricultural programs the objective is to develop plans which are both adaptable and flexible, so as to meet changing industrial and international situations as they may arise. It is also the aim to provide for as much flexibility and freedom of action on the part of the individual farmer as is consistent with the maintenance of a proper balance between farm production and the need therefor.

In working toward these objectives, first consideration has been given to volume of production needed. Before we can gauge the adjustments desirable in our present agricultural production and our need for farm land, we first must determine which of our products are now produced in superfluity or deficiency—in short, to set up goals toward which we should aim. In determining the desirable volume of production, the aim should be to main-

tain our present and prospective population on a level of consumption for food and non-food products at least equivalent to that enjoyed in relatively prosperous periods in the past, and to so distribute and control this production as to result in a standard of living for the farm population comparable to that enjoyed by other groups. To this production, should be the added probable volume of farm products which we will be able to sell abroad at remunerative prices, consideration being given, at the same time, to the kinds and quantities of foreign products we should take as imports. Likewise, in determining this production account must be taken of trends in consumption now under way, of possible future changes in dietary habits, the effects of varying levels of business activity and consumer purchasing power and the effect of national economic policy upon international trade.

Considerable progress already has been made in determining what the total and per capita consumption of our major agricultural products has been for a past period of years, the variations during periods of prosperity and depression, and the relation it has to the need for farm land. In working out the effect of business activity and international trade upon the volume of production needed, close working relations are maintained with the Agricultural-Industrial Relations and Import-Export Sections of the Program Planning Division, as well as with the Bureau of Agricultural Economics and other governmental research units.

Coordinated with the problem of the volume of production needed is the equally important problem of distribution of this production. This involves a consideration and appraisal of our natural resources, the distribution of our present agricultural production and the reasons therefor, and the relative adaptability of the different regions and areas to the production of the various crop and livestock products. This appraisal will also determine what lands, now used for agricultural production, had best be taken out of production, and what lands should be devoted to less intensive uses. Finally, there is the problem of allocating the total volume of production needed among the various regions, areas, and individual farms, with due regard to the productivity and resources of each. The objective will be to develop regionalized plans which will result in the desired production for the nation as a whole, and which, at the same time, will permit each individual farmer to follow the system of farming best adapted to his conditions and farm.

Work on this phase of the problem ties in very closely with the work of the Land Policy Section, the various commodity sections

in the Agricultural Adjustment Administration, and with the Division of Farm Management and Costs in the Bureau of Agricultural Ecoomics, as well as with the State Agricultural Colleges and Experiment Stations. Considerable progress has been made already in determining the relative contribution of each agricultural area and region to the national total, and the interdependence and interrelationships between regions as well as the variations in organizations and conditions found on individual farms in each region.

Concurrently with the work on the longer-time phases of the problem, the Production Planning Section also has spent considerable time upon the current emergency programs. Attention has been centered particularly upon the feasibility and practicability of shifting the present commodity approach into a unified program for the whole farm. The need for a greater coordination and unification of effort is generally recognized. The problem is how best to effect it. The aim is to work out a scheme so coordinated that no farmer will have to sign more than one contract, this contract to be administered and checked by a single production control association in each county.

The *Agricultural-Industrial Relations Section* maintains liaison between the Agricultural Adjustment Administration and other branches of the Department of Agriculture and other governmental agencies which are concerned with industrial and general economic activities and relations between agriculture and other industries. It obtains information as to present and prospective industrial and financial developments, and interprets their bearing on the programs of the Administration and the welfare of the farmers. For example, the section keeps currently informed concerning the activities of the motor, building, and railway industries; the financial situation in the United States and in leading foreign countries, and other phases of the economic situation. The immediate object is to determine our exact position in the general business cycle and the extent to which the trend of the cycle has been modified. This section seeks to provide a clue to trends in industrial employment, demand for farm products, standards of living and the migration of labor to and from the farms, as bases for agricultural adjustment programs and their coordination with industrial recovery programs.

The *Import-Export Section* has as its basic function estimating and planning the future international trade of the United States in agricultural products as one of the components of an agricultural production policy, and coordinating information on this

subject. This section is engaged in forecasting developments likely to influence the future trends in agricultural imports and exports of the United States. With such information available, allowances for foreign trade possibilities can be made in formulating agricultural adjustment programs. This function relates not only to short-time but also to long-time adjustments. For example, the section is just now appraising our prospective foreign trade in agricultural commodities over a course of two or three decades as a contribution to the report on land utilization and policy mentioned above.

In addition to gathering information on import and export trends, the section is concerned with influencing such trends. This involves expanding foreign outlets for our agricultural production, and developing import policies designed to effect a proper coordination between the agricultural adjustment program and the broad program of foreign trade expansion, through tariff bargaining and in other ways, in which the federal government is now engaged.

Through this section the Agricultural Adjustment Administration is represented on the Executive Commercial Policy Committee, an interdepartmental group which develops broad policies in respect to our foreign trade. The section also joins in the deliberations of the Interdepartmental Committee on Foreign Trade, which is in immediate charge of tariff bargaining negotiations. It is concerned not only with problems arising in connection with requests by foreign countries for concessions tending to conflict with our adjustment programs, but also with the export side of the negotiations as they effect the adjustment program. It is also the medium through which liaison is maintained with the Office of George Peek, Special Adviser to the President on Foreign Trade, in respect to operations dealing with products involved in the adjustment program. In connection with international commodity agreements designed to adjust world production of agricultural products to existing conditions of world demand, it cooperates with other branches of the Department in formulating the policies to be followed by the United States.

The interdepartmental Committee on Shipping Policy, a special committee appointed by the President to investigate and make recommendations with respect to merchant marine policy, is another coordinating agency in which the section joins. Its representative on the committee acts for the entire Department in looking after the interests of agriculture as affected by merchant marine policies in their bearing upon our agricultural foreign

trade. The Import-Export Section also is responsible for preparing surveys and recommendations on complaints under section 3 (e) of the national recovery act in so far as they relate to imports of products falling under the code jurisdiction of the Agricultural Adjustment Administration.

Establishment of a *Marketing Planning Section* is in prospect. The functions proposed for this section include the development of basic policies for improving the efficiency of marketing agricultural products. To this end the section will follow closely the developments of production control methods, codes and marketing agreements, and observe their effect on marketing efficiency and cost of operation, and their effectiveness in controlling the time and rate of marketing.

Establishment of a Marketing Planning Section has been delayed pending clarification of the Agricultural Adjustment Administration's functions with respect to marketing agencies.

The planning functions of the *Replacement Crops Section* are related closely to those of the Production Planning Section. Up to the present time the section has been concerned chiefly with recommendations and regulations relating to the use of "contracted" or "rented" acreage under the various benefit payment contracts. It has been encouraging, in particular, the planting of erosion-preventing and soil-building crops on these acreages.

The *Rehabilitation Section* was established to serve as a coordinating agency between the Rural Rehabilitation Division of the Federal Emergency Relief Administration, the federal and state extension services and the Agricultural Adjustment Administration.

"Rehabilitation" rather than "relief" is the keynote of the program of the Emergency Relief Administration in rural areas. The primary purpose of the rehabilitation program is to enable destitute farm families eligible for relief to become self-supporting on a plane consistent with American standards. To attain this end it is planned to make available seed stocks, farm animals, equipment, buildings or land for subsistence purposes, and, when necessary, to provide supplementary employment in private industry or on public work relief projects. There were approximately six hundred thousand farm families on public relief before the drought brought financial distress to additional thousands.

Many of the drouth victims require merely temporary aid to tide them over the 1934 emergency. They are adequately equipped for successful farming operations under normal weather condi-

tions and no complicated program of rehabilitation is required for them. Some rehabilitation subjects, however, will require a new plan of operation if they are to raise themselves to a plane of self-sufficiency. Still others are situated where success is impossible because of poor soil, lack of moisture or other material factors, and voluntary transfer to more favorable environments is desirable.

Another feature of the rural rehabilitation program deals with the transfer of selected unemployed urban dwellers to small tracts of land where they can engage in subsistence farming. These subsistence farmers, for the most part, are to be grouped in cooperative communities to facilitate self help activities. Work centers adequately equipped for carpentry, blacksmithing, canning, sewing, repairing, et cetera, are also a feature of the rural rehabilitation program.

Rural rehabilitation is far reaching in its economic and social implications. It touches the established program of the United States Department of Agriculture, the Agricultural Adjustment Administration, and the land grant colleges at many points. The personnel of the Rehabilitation Section is drawn from the extension organizations of different regions of the country and is therefore qualified to serve in coordinating the Relief Administration's program of rural rehabilitation, new in some of its phases, with the programs of the Agricultural Adjustment Administration, the United States Department of Agriculture and the Colleges of Agriculture.

Supervision and Personnel of the Division

The work of the Division is supervised and directed by H. R. Tolley, Director; Mordecai Ezekiel, Associate Director; and A. J. S. Weaver, Assistant Director. The section chiefs are: L. C. Gray, Land Policy Section; F. F. Elliott, Production Planning Section; L. R. Edminister, Import and Export Section; L. H. Bean, Agricultural-Industrial Relations Section; J. F. Cox, Replacement Crops Section; and J. Phil Campbell, Rehabilitation Section.

On September 1, 1934, the total personnel numbered 188 persons, with 48 professional and 31 clerical workers in Washington, and 47 professional and 62 clerical workers in the field. Of the professional staff, 32 have been transferred from the Bureau of Agricultural Economics, 37 have been obtained from agricultural colleges and other agricultural institutions, and 26 from other sources. The Land Policy Section, with a personnel of 130,

has the largest staff. A considerable expansion of personnel in this section was made necessary by the work involved in the program for submarginal land acquisition and in the preparation of the report on land utilization and land planning for the National Resources Board. Of its total staff, the section has 44 professional and 61 clerical workers in the field.

Relation of Division's Work to Research in Agricultural Economics

The Program Planning Division necessarily must draw heavily upon the results of research in agricultural economics and related fields. It has constant use for current and historical statistics with respect to all phases of agriculture. Using as a basis the results of research by the Bureau of Agricultural Economics and the Agricultural Economics Departments of the State Experiment Stations, the Division seeks to determine the lines of activity by which the Agricultural Adjustment Administration can best effectuate the policy of the agricultural adjustment act and increase the incomes of farmers in different regions producing different commodities.

Many problems which confront the Division have not been made the subject of well organized research. In other instances, research has not yielded results useful in developing a forward-looking program. However, the Division has not yet undertaken, nor is it intended that it shall undertake, original research in subjects in which research already is being carried on, or in which it can be conducted by established research agencies.

Coordination of research is facilitated by the close working relationships the Division has established with the Bureau of Agricultural Economics and other bureaus of the Department of Agriculture, and with other branches of the government, such as the Central Statistical Board, the Treaty Division of the State Department, and the Division of Research of the Federal Emergency Relief Administration.

VERIFICATION OF TARIFF EFFECTIVENESS BY DIFFERENT STATISTICAL METHODS

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With the enormously difficult adjustments which now confront us as a nation, tariff questions assume a new and increasingly significant place, whether we choose the path of internationalism, nationalism, or a planned middle course. Tariff research designed to measure approximately the effectiveness of duties is therefore especially timely and valuable insofar as it makes available the facts necessary for an enlightened tariff policy.

Tariff questions have been and still are generally cited as examples of economic problems which do not lend themselves to quantitative analysis. Although in recent years considerable work has been done by various students in applying statistical methods to obtain some quantitative measurement of tariff effectiveness,[1] there has not been any widespread attempt to bring together the various methods and correlate or verify the results of one method with those of other methods. Consequently, tariff research has not attained its highest degree of effectiveness.

In order to secure the most valid conclusions regarding the effects of a duty on prices, production, and trade of a given commodity, several methods should be used and the results checked against each other. The final measurement will be a composite figure which will be more generally acceptable and more accurate than any obtained by use of a single method. Moreover, checking the results obtained by one method with those obtained by others will help to establish some measurement of its adequacy for use in other commodities where no other method may be feasible.

The effectiveness of tariffs in keeping out imports can be measured by statistics of imports, and their effectiveness in increasing domestic output by production data. But the effects of duties

[1] A. C. Pigou was one of the first workers to develop a mathematical procedure for analyzing tariff effectiveness. See his "Protective and Preferential Import Duties," London, 1906, and his "Economics of Welfare," New York, 1924. Some of the assumptions and mathematics developed by Pigou have been elaborated by Schultz, Wright, and others. See Schultz, Henry "Statistical Laws of Demand and Supply," University of Chicago Press, 1928, "Marginal Productivity and the Pricing Process," *Journal of Political Economy*, October 1928, etc., and Wright, P. G. "The Tariff on Animal and Vegetable Oils," New York, 1928, "Sugar in Relation to the Tariff," New York, 1924, etc. For more general discussions outlining the problem and showing possible procedures see Taussig, F. W. "Some Aspects of the Tariff Question," Cambridge, Mass., 1931, and Black, J. D. "Analysis of Tariff Duties," JOURNAL OF FARM ECONOMICS, January, 1930. The Wisconsin Tariff Research Committee, under the direction of Professors Commons, Hibbard and Morton has recently made available three monographs, "The Tariff on Sugar" by Lippert S. Ellis, "The Tariff on Dairy Products" by Roland R. Renne, and "The Tariff on Barley, Oats and Corn" by Theodore W. Schultz. For a critical appraisal of approaches and emphases of different students see Morton, W. A. "Methods of Tariff Investigation," Appendix C in "The Tariff on Sugar."

on prices are not so easily discernible. It is generally recognized that prices are determined by the interaction of supply and demand forces and that the only way tariffs can affect prices is by reducing imports and hence decreasing supplies. But the effects on price may not be very directly related to the effects on imports. A duty may prohibit or greatly restrict imports without significantly changing the domestic price. On the other hand only a small amount of the total domestic consumption may be imported over the tariff wall and domestic prices be maintained above foreign prices by virtually the full amount of the duty.[2] It behooves us, therefore, to analyze thoroughly the principal demand and supply forces in each commodity and determine by numerous methods the specific effects of the duty. Only by such means can anything approaching a standard procedure be established and acceptable results secured.

For illustrative purposes in this paper flaxseed will be used. It is a particularly good commodity example for several reasons, principal of which are: (1) Data are available to permit the use of several methods of analysis, (2) a sufficient number of familiar factors are involved to make the application of the procedure fairly general, and (3) the tariff on flaxseed has been changed sufficiently over a period of years which makes possible a comparison of the results predicted with those which actually occurred.

Determination of the Maximum Price Differential Maintainable by a Tariff

The first step in an analysis of the price effects of a tariff should be the determination of the maximum differential which the duty can maintain between domestic prices and those in foreign markets. For various reasons the differential attributable to the tariff may be equal to the duty, much less than the duty, or zero, but it can never exceed it. A duty of 40 cents a bushel cannot, in and of itself, maintain a differential greater than 40 cents. A differential greater than this is due in part to price-making forces other than the duty. But a differential less than the duty may be taken as a measure of the direct or actual effect of the duty on domestic prices since without the tariff prices in domestic markets would tend to equal prices in foreign markets. In so far as various price-making influences affect the size of the

[2] The different dairy products are good examples to show varied modifications of these conditions. See the author's analysis in "The Tariff on Dairy Products" Tariff Research Committee, Madison, Wisconsin, 1933.

differential so that it is less than the duty, they have, so to speak, "offset" in part the theoretical influence of the duty which is to maintain a differential equal to itself. If no differential exists in favor of domestic prices the tariff is said to be ineffective, that is, the influence of other price-making forces is sufficiently stronger than the influence of the duty that its theoretical influence is neutralized entirely.

Some of the more important price-making forces that affect the size of the differential which can be attributed to a given tariff are: (1) Differences in quality of the domestic and the foreign product, (2) differences in transportation costs in the domestic and foreign countries, (3) drawbacks allowed on goods manufactured from imported goods and then exported, and (4) differences in methods of quoting prices in the domestic and foreign countries. All except the last of these four factors operate in the case of the flaxseed tariff, but only differences in quality and the drawback will be discussed at this point. The transportation factor will be discussed under the section "Verification of Results by Comparison of Farm Price Differentials."

Under the tariff acts of 1922 and 1930 producers of exported linseed oil, linseed cake and meal, and other products made from imported flaxseed are entitled to a refund or drawback equivalent to 99 per cent of the duty paid on the seed used in making the exported product. For the six-year period 1923-1928, the refund of duty on exported products, almost entirely linseed cake (90 per cent), averaged approximately 20 per cent of the total duty collected or nearly 8 cents per bushel of the total flaxseed imported during these years. If domestic crushers can export linseed cake and sell it abroad at the United States price plus freight, handling and other costs, the amount refunded by the drawback on such exports of cake made from imported flaxseed reduces by a similar amount the cost of importing the seed. An analysis of linseed cake prices at London and New York for this period shows a London price sufficiently higher than New York prices to permit domestic crushers to sell linseed cake abroad advantageously. Thus the amount refunded by the drawback on such exports reduces by a like amount the costs to domestic crushers of importing flaxseed and correspondingly reduces the protection which domestic growers receive from the duty.[3] The effective duty under the Act of 1922 therefore be-

[3] Western crushers do not avail themselves of the drawback on such seed as they import—almost entirely from Canada—because of the high transportation costs to the seaboard and the fact that they have a good domestic market among dairymen of the Middle West. This has led some students to conclude that the drawback does not reduce the effectiveness of the tariff. However,

comes not 40 cents but about 32 cents a bushel. The drawback averaged about 22 per cent of the total duty collected or more than 10 cents per bushel of the total flaxseed imported in 1929 and about 24 per cent or more than 13 cents per bushel in 1930. Thus the effective duty under the 1929 rate (56 cents by Presidential Proclamation) becomes not 56 cents but about 46 cents per bushel, and that under the 1930 tariff not 65 cents but about 52 cents. The drawback provision applies not only to flaxseed but to products in general which are manufactured from imported goods and then exported. This drawback provision has been included in United States tariff acts almost since the beginning of our tariff legislation; consequently it is likely that this feature will be continued.

Canadian flaxseed contains about one-half pound of oil and Argentine flaxseed about one pound of oil per bushel more than domestic northern-grown flaxseed.[4] This higher oil content of the Canadian and Argentine seed offsets somewhat the effectiveness of the duty. With no tariff on flaxseed and assuming that the same percentage of the oil is expressed in both domestic and foreign seed, this higher oil content would make it possible for domestic crushers to pay the price of one-half pound of oil minus the price of one-half pound of linseed cake more per bushel for Canadian seed, and the price of one pound of oil minus the price of one pound of linseed cake more per bushel for Argentine than for domestic seed. With prices of linseed oil and cake which have been maintained in recent years this would amount to between 2 and 3 cents a bushel for Canadian seed and to between 4 and 6 cents for Argentine seed. With no United States tariff on flaxseed and assuming all other factors in the United States and Canada equal, Winnipeg flaxseed prices would be about 2 to 3 cents a bushel above Minneapolis prices. Hence, this quality differential lowers the effectiveness of the American tariff in keeping out Canadian flaxseed by about 2 to 3 cents a bushel. The combined influence of the drawback and this difference in quality makes the maximum price differential which the 40 cent tariff of 1922 could maintain between Canadian and domestic prices approximately 30

eastern crushers do avail themselves of the drawback on the seed they import, almost all of which comes from Argentina, and, because of the consolidation of ownership in the eastern and western mills, the costs of importing Argentine flaxseed tend to fix the price of both domestic and Canadian seed. Consequently the drawback, since it reduces the costs of importing Argentine flaxseed, correspondingly reduces the effectiveness of the duty. In this connection it is interesting to note that in its report to the President on Linseed Oil in 1929 the United States Tariff Commission subtracted the drawback received from exports of oil and cake made from imported seed, from the cost of importing flaxseed into the United States.

[4] See the analyses by D. A. Coleman and H. C. Fellows in *United States Department of Agriculture Bulletin 1471*, "Oil Content of Flaxseed, with Comparisons of Tests for Determining Oil Content."

cents a bushel, the 56 cent duty of 1929 about 42 cents, and the present 65 cent tariff about 50 cents.

Causes of Fluctuations Above or Below the Maximum Differential

The next step, after the maximum price differential which a given tariff can maintain has been determined, should be to ascertain the causes of fluctuations in prices above or below the maximum differential. A tariff may remain unchanged for several years but the differential between domestic and foreign prices may fluctuate greatly. Fluctuations above or below this maximum differential are caused by price factors other than the duty. The combined influence of these price factors and their comparative importance individually in causing the differential to go above or drop below the maximum differential can be measured statistically by the method of multiple correlation. Of course it is not possible to separate out every one of the many price determining influences that operate in a given market so it is not possible to measure their influence exactly. But it is possible, in many cases, to measure 90 or 95 per cent of the total price-making influences. Moreover, after such analyses have been made it is frequently possible to forecast for several months in advance, and with a reasonable degree of accuracy, whether the price differential which will be maintained will be above or below the maximum differential maintainable by the duty itself.

Using flaxseed as an example it is found that the differential between Minneapolis and Winnipeg flaxseed prices fluctuated from 15 cents to 73 cents a bushel during the period 1923-1928 in spite of the fact that the duty remained constant at 40 cents a bushel. Making full allowance for the drawback and for the difference in oil content of domestic and Canadian seed, the constant duty of 40 cents could not maintain a differential greater than about 30 cents. Other price-making factors in the Minneapolis and Winnipeg markets caused the differential to fluctuate above or below 30 cents. The principal price factors which operate in the Minneapolis market are: (1) Fluctuations in the general price level of all commodities in the United States, (2) receipts of flaxseed at Minneapolis, (3) stocks of flaxseed in store in public and private warehouses at Duluth and Minneapolis, and (4) the amount of building operations in the United States. Some of the principal price factors which operate in the Winnipeg market are: (1) Fluctuations in the general price level of all commodities in Canada, (2) receipts of flaxseed at Fort William

and Port Arthur, (3) the Canadian visible supply of flaxseed, and (4) the amount of building operations in Canada. Argentina is the largest producer of flaxseed in the world. The visible supply of Argentine flaxseed is a factor affecting the actual price paid for flaxseed at both Minneapolis and Winnipeg. However, it may not necessarily affect Minneapolis and Winnipeg prices equally or at the same time, and it may exert an appreciable effect on the differential between prices in these two markets.

The influence of changes in the general price level of all commodities in the United States and in Canada (changes in the value of the dollar in these two countries) on the differential can be determined by deflating Minneapolis flaxseed prices by the Bureau of Labor index of wholesale prices in the United States, and by deflating Winnipeg flaxseed prices by the Dominion Bureau of Statistics index of wholesale prices in Canada.[5] After thus adjusting Minneapolis and Winnipeg prices, Minneapolis averaged 27.3 cents above Winnipeg prices for the period 1923-1928. This is 8.5 cents a bushel less than the differential of actual Minneapolis above actual Winnipeg prices, and measures the influence on the actual differential of changes in the value of the dollar in the United States and Canada. The combined effect of the other seven price factors noted above upon the differential of adjusted Minneapolis above adjusted Winnipeg flaxseed prices was measured by multiple correlation. The results of this analysis show that about 94 per cent of the variations in the differential of adjusted Minneapolis above adjusted Winnipeg flaxseed prices during the years 1923-1928 (when the duty remained unchanged) was associated with variances in the seven factors used. Or, stated differently, only a very small portion of the fluctuations in the adjusted differential was due to variances in price-making forces other than those in the seven factors studied.[6]

The relative importance of each of the seven factors in determining fluctuations in the differential can be determined from the coefficients of determination. By this method variations in the Canadian visible supply of flaxseed appeared to be of rela-

[5] The value of using adjusted prices in analyzing the effect of a tariff on prices may be questioned on the ground that the tariff acts directly on actual prices, which is true. However, the analysis made here is for the purpose of explaining fluctuations in the differential between Winnipeg and Minneapolis prices above or below the maximum differential which the tariff could maintain. Obviously a 40 cent duty cannot be responsible for a differential of 51 cents which Minneapolis prices maintained above Winnipeg prices during 1923. In fact, as shown by an analysis of the drawback and the quality differential the duty could maintain a differential of but about 30 cents. Fluctuations above or below this differential may be caused by changes in the value of the dollar in the United States and in Canada. Consequently, flaxseed prices should be adjusted to measure the influence of such changes.

[6] For details of the multiple correlation analysis made see Renne, Roland R. "The Flaxseed Market and the Tariff," *Montana Agricultural Experiment Station Bulletin 272*, February, 1933.

tively greater importance in affecting the differential than any of the other six factors. The amount of building operations in Canada ranked next in importance in affecting the differential, the amount of building operations in the United States next, followed in order by the Argentine visible supply, receipts at Minneapolis, receipts at Fort William and Port Arthur, and stocks in store at Duluth and Minneapolis. This last factor exerted very little effect on the spread between adjusted Minneapolis and Winnipeg flaxseed prices.[7]

Verification of Results by Comparison of Farm Price Differentials

The third step in a logical tariff analysis, after the maximum price differential which the given duty can maintain has been ascertained and the causes of fluctuations above or below this maximum differential determined and their relative importance measured, is to try to authenticate or verify, by one or more means, the results secured in the preceding steps. The possibilities of confirming results vary greatly with different commodities, but if possible at least two methods should be used. If the domestic and the foreign nations are contiguous and their producing areas are in the same general market zone, conclusions reached in the first two steps may be confirmed by comparing farm prices at country points in the two nations. If necessary data on domestic and foreign demands and supplies are available, the formula or equilibrium method may be used to verify results. In the case of flaxseed both of these methods can be used effectively and the results secured from using them will be given here.

The heart of the flax-growing area of Canada is in Southern Saskatchewan, just across the Montana border. The Saskatchewan producing area is within the same general market zone as the Montana producing area. If there were no tariff barriers between Canada and the United States and freight costs to the terminal markets and other price factors were the same, prices of flaxseed at country points in Montana and across the border in Saskatchewan would be approximately equal. Consequently, if any difference exists between these prices after due allowance has been made for differences in Canadian and American freight rates, this differential must be due principally to the influence of the American tariff.

[7] These results, together with the methods used and an appraisal of the statistical conclusions, are given in the author's analysis in *Montana Agricultural Experiment Station Bulletin 272*.

Prices paid to farmers at Flaxville, Montana, from January, 1924, until January, 1929, averaged 19.4 cents a bushel above prices paid farmers at Viceroy, Saskatchewan for the same period. The difference in freight rates from Viceroy to the Head of the Lakes and from Flaxville to the Head of the Lakes averaged 10.4 cents a bushel in favor of the Canadian producer. Consequently if there were no tariff in effect, prices at Flaxville would have averaged 10.4 cents a bushel less than prices at Viceroy during this period. So, in reality, Flaxville prices were 19.4 cents plus 10.4 cents or 29.8 cents above what they would have been had there been no duty in effect. Prices paid farmers at Scobey and Whitetail, Montana, averaged 19.4 cents and 21.1 cents a bushel, respectively, above prices paid farmers at Viceroy during this same period. Making allowance for differences in Canadian and American freight rates (10.9 cents in favor of Viceroy over Scobey and 10.4 cents in favor of Viceroy over Whitetail) farmers at Scobey received 30.3 cents a bushel, and farmers at Whitetail 31.5 cents a bushel more for their flaxseed than they would have on the average during these five years had there been no tariff in effect. While these average differentials of 29.8 cents, 30.3 cents, and 31.5 cents cannot be taken as exact measures of the influence of the duty on domestic prices, it is rather significant that these differentials approximate so closely the figure of 30 cents which was obtained as the effect of the 40-cent tariff on prices after discounting the effect of the drawback and the difference in the oil content of domestic and Canadian seed. These differentials tend to substantiate or verify the conclusions reached in the preceding steps.

The tariff on flaxseed was increased by President Hoover to 56 cents in May 1929. Prices paid farmers at Flaxville, Scobey, and Whitetail above prices paid farmers at Ceylon, Saskatchewan, from June, 1929, through May, 1930 (when the duty was again changed), averaged 29.5 cents, 29.3 cents, and 30.6 cents respectively. (Ceylon is used as the Canadian farm point in the comparisons during this period because data showing prices paid farmers at Viceroy are not available after 1928.) Making allowance for differences in Canadian and American freight rates, farmers at Flaxville, Scobey, and Whitetail received 40.1 cents, 40.8 cents, and 41.2 cents a bushel, respectively more for their flaxseed than they would have on the average during these twelve months had there been no tariff in effect. It is significant that the above differentials approximate so closely the figure of 42 cents which was obtained as the effect on the 56-cent

duty on prices after discounting the effect of the drawback and the difference in quality of domestic and Canadian seed. They tend to confirm or authenticate the results secured in the preceding steps.

Verification of Results by Use of the Formula or Mathematical Equilibrium Method

The results secured by the comparison of farm price differentials checked quite closely with results secured in the preceding steps. A further check can be made by using the formula method devised by Professor Henry Schultz.[8] This has been termed the equilibrium method because it involves the setting up of production and elasticity of consumption curves and, on the basis of a matching of these curves, forecasting the probable effects of the duty.[9] The formula may be written thus:

$$\Delta P = T_f \frac{1}{1 + \frac{e_d s_d - n_d D_d}{e_f s_f - n_f D_f}}$$

The meaning of the symbols contained in the formula together with their values which were secured in the case of flaxseed for the six-year period 1923-1928 when the duty remained constant, are as follows:[10]

(1) ΔP is the increase in price which will follow the imposition of the duty. This is the unknown in the formula.

(2) T_f is the amount of the duty which was 40 cents a bushel during the six year period.

(3) e_d is the elasticity of the domestic supply of flaxseed or what may be termed the responsiveness of producers to changes in price. A figure of 1.22 was obtained for the elasticity of the domestic supply of flaxseed during this period.

(4) e_f is the elasticity of the foreign supply of flaxseed or what may be termed the responsiveness of producers in foreign countries to changes in price. The value of this item was found to be .455.

(5) n_d is the elasticity of the domestic demand for flaxseed or the responsiveness of domestic buyers to changes in price. Its value was found to be .503.

(6) n_f is the elasticity of the foreign demand for flaxseed, or the responsiveness of buyers in the principal flaxseed importing countries to changes in price. Its value was found to be 1.06.

(7) s_d is the domestic output, or the United States production of flaxseed. The average annual production for the six years 1923-1928 was 22.7 million bushels.

(8) s_f is the foreign output or world production of flaxseed minus the United States

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[8] Schultz, Henry, "Statistical Laws of Demand and Supply."

[9] Black, John D. "Analysis of Tariff Duties," JOURNAL OF FARM ECONOMICS, Vol. XII, No. 1, January 1930, p. 81.

[10] The methods and data used in computing these values are shown in *Montana Experiment Station Bulletin 279.*

production. The average annual foreign production for the six year period was 123.2 million bushels.

(9) D_d is the domestic consumption of flaxseed which averaged 42.3 million bushels annually during the years 1923-1928.

(10) D_f is the foreign consumption of flaxseed which averaged 103.6 million bushels annually during this six year period.

Substituting these values in the formula we get:

$$\Delta P = T_f \frac{1}{1 + \frac{(1.22)\ (22.7) - (-.503)\ (42.3)}{(.455)\ (123.2) - (-1.06)\ (103.6)}} = 0.772\ T_f$$

or the increase in price is 77.2 per cent of the duty. This result indicates that if the 40-cent duty had not been in effect during this period, domestic prices of flaxseed would have been approximately 30 cents per bushel less than they were. It is interesting to note that this is approximately the same figure obtained as the effect of the 40-cent duty on prices after discounting the effect of the drawback and the difference in quality of domestic and Canadian seed. It tends to confirm or verify the results secured in the preceding steps.

Conclusions

The procedure outlined above is an attempt to work out a logical analysis to determine as accurately as possible the price effects of a tariff. This analysis consists of three steps: (1) Determination of the maximum differential which the duty, in and of itself, can maintain between domestic prices and those in foreign markets; (2) Analysis of the causes of fluctuations in prices above or below this maximum differential and measuring their relative influence; and (3) Verification or confirmation of results by one or more means. It may not be applicable to all products but it does show the desirability and some of the possibilities of using more than one method of analysis to check the results obtained. Its chief value, aside from giving a composite measure of tariff effectiveness checked by different methods, is the understanding of price-making forces which operate in a given market and their comparative importance. This is secured somewhat indirectly in the second step where the causes of fluctuations above or below the maximum differential maintainable by the duty are analyzed.

No attempt has been made here to go into such details as the mathematics of the statistical equilibrium approach. The author

is fully aware that there is much yet to be done in perfecting the application of such methods. However, it is hoped that the procedure here outlined, incomplete and sketchy as it is, will bring to the attention of students of the tariff the need for continued research along these lines so that ultimately a complete and adequate technique will be available for determining tariff effectiveness.

THE LAND APPRAISAL PROBLEM[1]

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Widespread defaults on farm mortgages in recent years and more recently a large refinancing program by the Farm Credit Administration bring into the limelight the problem of land appraisals. The time is right, it would appear, for an examination of the whole system of valuing land for loans.

A record of farm mortgage lending experience in the last two or three decades warrants, according to the evidence reviewed in this paper, an indictment of appraisal practices on two counts. First the loan policy has been determined too often by current sale values of land and current prices of farm products. Secondly, the system of appraising individual farms has been woefully inadequate. In general the more productive farms have been undervalued and the less productive overvalued. We will proceed to consider the charges in the order named.

I. Determination of Loan Policy

Any corporation or individual that lends on farm mortgage security usually adopts some kind of loan policy. The policy may be to lend a certain percentage of current sale value of land, or of what may be termed normal sale value of land, or even of a normal value based on prices of farm products during a certain period of years. Whatever is the policy it is something separate and distinct from the task of appraising John Jones' farm, a subject to be considered later. This policy in reality represents the scale at which loans will be made on varying types of security offered. During the last sixty years insurance companies have usually had at any one time in this period a scale of loan values representing the maximum loans for farms in different localities. In County A, for example, an insurance company in 1890 was lending a maximum of $10 an acre, in 1910 the policy allowed maximum loans of $30 an acre, in 1925 maximum loans of $100 an acre. In another area with farms of a lower quality the loan maximum of the company was proportionately lower. This example indicates how the loan policy of a company at any one time is the standard for all loans made.

Mortgage loan policies have changed radically with time. The example given above of a loan policy changing from $10 an acre

[1] Journal Paper No. J 170 of the Iowa Agricultural Experiment Station, Ames, Iowa. Project No. 20.

in 1890 to $100 an acre in 1925 on the same kind of security is a case in point. In fact it is this change in loan policy from time to time which has been one of the besetting evils of the mortgage loan business. Unfortunately there appears to be no wholly satisfactory remedy for the practice. But that it is an evil there can be little doubt from a view of the evidence at hand.

A common practice of loan companies has been to vary their loan policy with land values. As the value of land goes up the maximum amount advanced has likewise gone up and with falling prices the maximum amount has been lowered. In effect, the loan policy of most companies has been to lend, as a maximum, a certain fixed percentage of the value of land at the time. With land values around $50 an acre loans will be limited to say $25, but if prices of farm products go up and land values rise to $100 an acre, then the maximum loans will go to $50 an acre. This illustrates the case which is quite common where 50 per cent of the value of the land is used as a base in determining the loan policy.

This plan of lending a fixed percentage of the land value works well as long as prices of farm products and land values are rising. On the other hand, when prices and values fall the difficulties of this system quickly become apparent. This follows because farm mortgages usually require a long term of years for their payment. One year's returns provide normally only a small payment on the principal of the mortgage.

An example of lending a fixed percentage of current land value is presented in figure 1.[2] In this graph the sale value of land and the debt per acre of land mortgaged have been plotted on logarithmic scale for a 78 year period, representing the mortgage history of Story County, Iowa. It will be noticed that the debt per acre has risen steadily with the rise in the sale value of land. As farms were sold at increasingly higher prices larger mortgages were negotiated. This went on roughly from 1875 to 1920. In 1921 the drop in farm prices and the beginning in the decline in land values brought to a halt the steady climb in debt per acre. Since that time the drop in debt per acre has come about chiefly as a result of forced liquidation by foreclosure or deeding of the farm to the mortgage holder.

Even a closer relationship would be evident between debt per acre and sale value if the debt figures were restricted to the new loans executed during the year in question. That is, if the debt

[2] See Murray, W. G. "An Economic Analysis of Farm Mortgages in Story County, Iowa, 1854-1931," Iowa Agr. Exp. Sta. Res. Bul. 156, 1933.

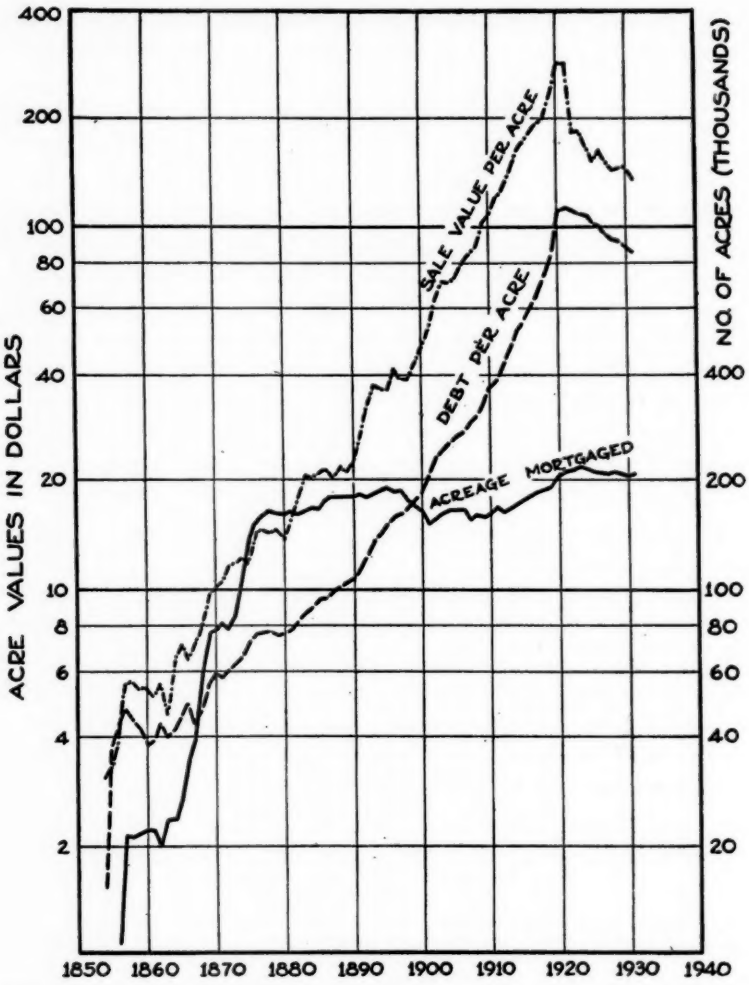

FIGURE 1.—Sale price of land, average debt per acre of land mortgaged, and acreage under mortgage, Story County, Iowa, 1854,1931. Note that settlement of county was practically completed by 1875 as indicated by acres mortgaged, and that thereafter a close relationship between sale value and debt per acre exists. (Courtesy Iowa Agricultural Experiment Station.)

per acre for 1910 were computed by taking only the new loans made in 1910. The debt per acre shown in figure 1 on the other hand is the result of taking all loans outstanding in each year and dividing that by the acreage involved.

Other studies confirm this tendency of lenders to base their loan policy on current sale values. Hinman and Rankin in their report on eleven Nebraska townships point out that the percentage

of debt assumed to the sale price of the land remained practically constant, fluctuating mainly between 30 and 40 per cent in the period 1880 to 1932.[3] This is the result of a comparison between the mortgages assumed and sale prices paid for land in each year during the period. It may appear surprising at first that the percentage is as low as from 30 to 40 per cent. In explanation it should be made clear that second and other junior mortgages were not separated out in this case but were treated as first mortgages thus giving a debt per acre below the actual figure.

There is no need to labor the point that it is clearly unwise to have a policy of lending a fixed percentage of current sale value. The consequences are a building up of a huge mortgage debt during prosperous times which then becomes potentially a factor of grave distress in the event that prices decline. If it is assumed that this policy works badly what can be recommended to take its place?

A reasonable policy, it would appear, would involve the assumption of a normal level of prices and values. Above and below this normal, prices and values would be expected to fluctuate. In anticipation of such fluctuations, loan policies would be based on the normal level of prices of farm products. If in any given year prices and values were above normal, these would be discounted by making loans no larger than during years when prices were normal. On the contrary when prices are below normal, loans would be made on the basis of normal prices in place of those prevailing at the time. The practice, then, in short, would be to lend more than prevailing prices justified during a period of low prices and to lend less than prevailing prices justified during a period of high prices. In this way the cycle of depression and prosperity could be discounted in advance.

If it were possible to assume a normal around which prices and land values could be expected to fluctuate the problem of loan policy would be greatly simplified. There is, however, no satisfactory method for establishing a normal, for such a method presupposes the ability to predict the course of prices throughout the next twenty or more years. It is possible, on the other hand, to designate some period arbitrarily as normal. This the Farm Credit Administration did in singling out the years 1909-14 as the normal on which they chose to base their lending opera-

[3] Hinman, Eleanor H., and Rankin, J. O. "Farm Mortgage History of Eleven Southeastern Nebraska Townships 1870-1932." Nebraska Agr. Exp. Sta., Res. Bul. 67, 1933, pp. 49-50.
See David Rozman, "Land Credit in the Town of Newton, Manitowoc County, Wisconsin, 1848-1926." *Journal of Land and Public Utility Economics.* November 1927, p. 383.
See also Black, A. G., and Black, J. D., "The Principles Involved in Farm Land Appraisal Procedure for Loan Purposes," *Journal of Land and Public Utility Economics,* October 1926, pp. 396-407.

tions.[4] This base is lower than that of 1926 which is the one on which many of the loans now outstanding were made. However, the 1909-14 period is much higher than any one of the years from 1870 to 1909. In the end, therefore, the choice of a base year is an arbitrary one within limits. It would appear unreasonable, for instance, to assume the high prices of 1919 as a base, or, on the other hand, the low prices of 1933. But where in between should the normal or base be established? An answer to this question is locked up in the mysteries of future monetary policy and events.

What can be established at present is the folly of following a plan of lending a fixed percentage of sale value with the idea that it is a safe and sound policy. The choice of some period as a normal for a base is of course not without its disadvantages but it does possess a decided point in its favor in the recognition that it gives to the problem of shifting prices.

In meeting the problem of price level uncertainties it may be possible to obtain relief by adjusting the payments of interest and principal to the price level. This might be arranged in several ways. One plan would provide for variable payments, the exact amount to be determined by the price level. In this case the payments as determined by the price level settle in full the requirements on interest and principal. Another plan, less drastic in nature, would provide for fixed dollar payments but would schedule them in accordance with the price level. For instance, in years of low prices like 1932 and 1933 principal payments would be postponed and, if provided for, the interest rate dropped. If years like 1919 should return, large principal payments would be required and, if previously arranged, the interest rate would be raised. Because of the heavy fixed obligations involved in financing farm ownership and because of the possibility still existing of severe price fluctuations some such plan is in order.

II. Grading Land Security

Once a loan policy has been determined, the next task is that of applying it to individual farms. This is the job of a fieldman who inspects the land and buildings, and goes over the credit situation of the applicant. After this inspection the fieldman, keeping in mind the loan policy of the company, makes a recommendation of the amount to lend on the farm in question.

By far the most important error in this phase of appraising in

[4] "Agricultural Refinancing Through the Farm Credit Administration," F.C.A., Washington, D.C. Circular 5, 1933, p. 11.

the past has been the tendency to overvalue poor land and to undervalue good land. In any one area the below average farms have been overestimated by the appraisers and the above average farms have been underestimated. What has happened has been an unwarranted concentration around the average. Not knowing definitely how much below the average a certain farm is in its productivity, the natural inclination of the fieldman is to err on the side of overestimation because that will still leave his recommendation below the average. Conversely with farms that are above the average of the area the appraisers will have difficulty in determining just how much better than the average they are, consequently, here the tendency is to err on the side of underestimation.

Not all the responsibility for this situation rests with the fieldman, those who pass on the recommendations in home or district offices are partly to blame. These office men are in a position to know the average values of land for a state or a county or possibly a township but they are not in a position to visualize the extremes in value which may exist in an area. This leads them to scan carefully any recommendations that are considerably above or below what the average farm in the county would warrant. In the end this system results in the fieldmen leaning heavily on the average and shying away from recommendations that are either far above or far below this average. To depart from the average to many appraisers means trouble in the form of inquiries from the office asking for reasons to substantiate the deviation from the average.

Evidence on the extent of this error in appraising is available from several sources. In figures 2 and 3 a comparison is presented between the value of land and buildings per acre in 1930 as given by the Federal Census and the per cent of land owned by corporations in 1933-34 by townships for the state of Iowa.[5] In interpreting the data in figure 2 it should be borne in mind that there were practically no corporate land holdings in Iowa in 1920, that, for the most part, the corporations now holding land previously had mortgages on this land, and that corporation loans on farm land were general over all but the eastern quarter of the state. With these facts in mind it is reasonable to say that where the corporations have the largest holdings there the appraisers overvalued the land and conversely where the smallest holdings are situated

[5] Murray, William G. "Farm Mortgage Policy," *Iowa Agr. Exp. Sta. Bul. 315*, 1934, pp. 140-145.

See also Steele, Harry A. "Farm Mortgage Experience of Life Insurance Companies Lending in South Dakota," *South Dakota Agr. Exp. Sta. Circular 7*, 1932.

there the appraisers undervalued the land compared with their appraisals in other sections. It might be contended that the concentration of corporate holdings in certain areas is the result of particularly adverse economic conditions in these areas. This however does not appear to be the case because where foreclosures have been numerous price conditions have not been any more unfavorable than in other sections of the state.

A glance at figures 2 and 3 will indicate the relationship which exists between low value land and large corporate holdings. On

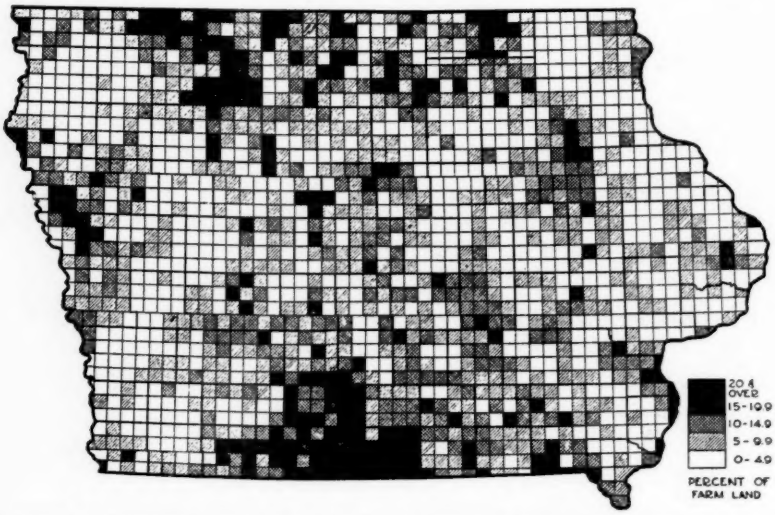

FIGURE 2.—Corporate-owned land in Iowa. Percentage of land owned by corporations in 1933 and 1934, by townships.

the other hand, the areas of high land values are in general the areas with small corporate holdings. In some sections, particularly in Eastern Iowa, the relationship does not hold because in these sections corporations did not make many mortgage loans. What is indicated here on a township basis might be even more clearly shown on an individual farm scale, for it is likely that in a given township the farms that have been taken over by corporations are as a rule below the township average.

Such a study of individual farms within a county has been made by Johnson for certain counties in Minnesota.[6] In these counties the foreclosed lands were plotted on a map on which the above and below average soils of the county had been indicated by various shadings. In most instances the preponderance

[6] Johnson, E. C. "Farm Mortgage Foreclosures in Minnesota." *Minnesota Agr. Exp. Sta. Bul. 293*, 1932.

of foreclosed lands was situated in the less productive soil areas. (See figure 4.) In the conclusions to his report Johnson says, "Studies of foreclosures in individual counties show clearly that failures among farmers have been relatively greater on the poorer lands. There has been a tendency to overvalue the lands of low productivity.'"[7]

A report giving what would at first appear to be contrary evidence comes from Missouri. Recent foreclosures in Missouri have been heaviest in the most productive farming areas according to

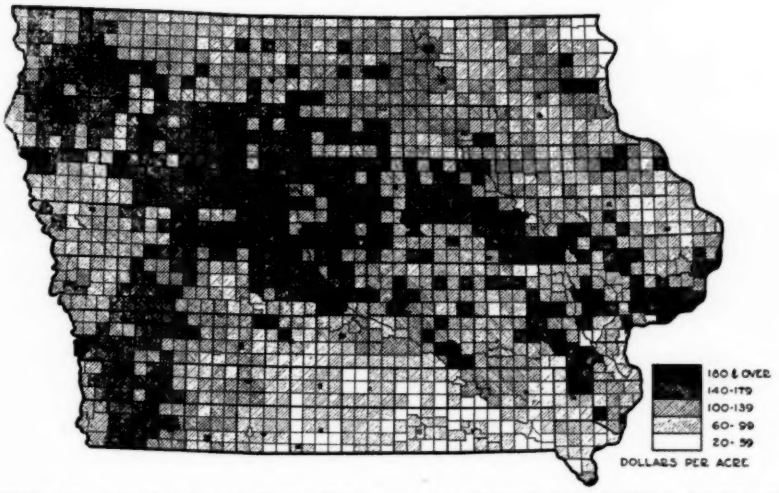

FIGURE 3.—Land values in Iowa. Value per acre of land and buildings, by townships. Data from the 1930 Federal Census.

Hammar and Moore.[8] They point out, however, that these same areas are the ones in which the largest volume of loans had been made. Since this study is based on county comparisons it would be interesting to see what foreclosures by townships or individual cases would show when compared with land values or soils.

From an analysis of the foreclosure experience of the Federal Land Bank of Springfield, F. F. Hill presents a wealth of evidence which indicates "that the highest percentage of foreclosures and by far the heaviest losses have been among loans made on the less desirable farms as measured by the appraised values of the land and buildings and the location of the farms relative to improved roads.'"[9] In a grouping of foreclosures in two regions

[7] *Ibid.*, p. 30.

[8] Hammar, Conrad H., and Moore, R. K. "The Missouri Farm Real Estate Situation for 1931-1932." *Missouri Agr. Exp. Sta. Res. Bul. 203*, 1933, pp. 20-27.

[9] Hill, F. F. "An Analysis of the Loaning Operations of the Federal Land Bank of Springfield from Its Organization in March, 1917, to May 31, 1929." *Cornell University Agr. Exp. Sta. Bul. 549*, 1932, p. 64.

of New York State, one a region of predominantly good soils and another one of predominantly poor soils, the foreclsures averaged 8.1 per cent of all loans made in the poor soil area and 4.7 per cent of all loans made in the good soil area. Moreover, the losses in selling these foreclosed farms were $17.29 per thousand loaned on the poor farms and only $5.97 per thousand on the good farms.[10]

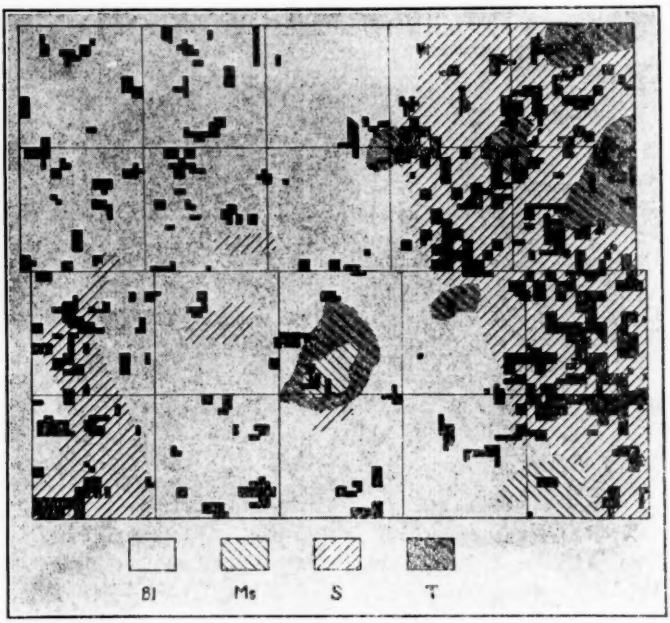

FIGURE 4.—Map of Pope County, Minnesota Showing Tracts of Land Sold at a Sheriff's Sale in 1920-31. The unshaded area includes dark loams and silt loams with heavy subsoil; shaded area, sandy soils, mainly fine sandy loams with sandy or gravelly subsoil. (Courtesy Minnesota Agricultural Experiment Station.)

This same tendency for valuations to concentrate too closely about the average can be found in assessments for tax purposes. A study by George B. Clarke of the Minnesota assessment system contains the following in a summary, "Assessors are forbidden by law and by the Assessors' Manual to value property according to an average. But the tendency to use average values is very strong. In the original data of sales, a good many instances were found of farms near each other valued the same by the assessor but selling for very different prices. Any tendency to value farms at an average figure would have the result of

[10] *Ibid.*, p. 20.

undervaluing high value farms and overvaluing those of low value. The results of this study show plainly that there has not been enough discrimination between good acres and poor in the assessment process.'"[11]

Sufficient evidence has been considered to indicate what is wrong with our system of grading or measuring the difference between farms. The question to be faced is what can be done to correct it. Fortunately there is more hope of improvement in this direction than in the field of loan policy. Here the problem is one of more accurately measuring the productivity of individual farms. In doing this, the first task is to bring a detailed analysis of soils into the appraisal picture. Heretofore the fieldmen who inspect farms have had to pass judgment on so many factors that as a result their ability along any one line such as soils has not been sufficiently stressed.[12] In addition to soils the questions of possible erosion in the future, infestation of weeds, and influence of such items as roughness in topography and acidity of soil have a direct bearing on the productivity.

Grading or appraising a tract of farm land is a technical job. If it is to be done properly men trained in the technical fields will have to be called on for at least some assistance. Soil surveys have been completed for many counties but these do not consider the individual farms as units. In some of the irrigation districts the land on individual farms has been graded from one to five according to its productivity. This is a development in the right direction because it focuses attention upon the important objective, that of evaluating the potential long run production of a farm.

Particularly out of line is the present practice of stressing the abstract of title more than the productivity of the land. It is not unlikely that a certificate as to soil and other factors affecting potential productivity may some day assume a position equal to that held by the abstract of title. Some of the factors affecting productivity, of course, change with time, such as the operator, demand for certain farm products, organic matter content of the soil and the like. However, the more permanent factors such as depth and character of the surface soil and subsoil, natural drainage, topography, climate and possibility of losses from erosion are so important that a scientific classification of the value of

[11] Clarke, George B. "The Assessment System of Minnesota in Its Relation to Equality of Taxation." JOURNAL OF FARM ECONOMICS, Vol. 12, No. 4, Oct. 1930, pp. 586-7. Also designated as Paper 946 of the Journal Series of the Minnesota Agr. Exp. Sta.

[12] For examples of important developments in soil appraisal see Storie, R. Earle. "An Index for Rating the Agricultural Value of Soils." *California Agr. Exp. Sta. Bul. 556*, 1933; and Bruce, O. C., and Metzger, J. E. "The Soils of Maryland, Productivity Classification." *Maryland Agr. Exp. Sta. Bul. 351*, 1933.

land on the basis of these factors would be highly useful; useful not only to loan agencies in appraising, but also to tax authorities in assessing land for taxes, and to governmental agencies in evolving a land use policy.

In conclusion it should be pointed out that mortgage loan policy has been based on an insecure foundation in the past and that appraisals of farms in the field have resulted in overvaluation of poor and undervaluation of good land. However, it is reassuring to note a growing recognition of the problem by lending agencies and by agricultural experiment stations as evidenced by the various research results referred to in this article.

A STATISTICAL ANALYSIS OF FARM ACCOUNTS

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In a small farm system mainly concerned with animal husbandry, which has provided relatively little opportunity for the use of labor-saving devices, the labor factor assumes great importance in production, and true economy in its use largely determines results in profit or loss. The factor of land is relatively of smaller importance and it appears that diminishing returns per acre may be accompanied by increasing returns per unit of labor and that higher profits may be earned at or after the point of diminishing returns per unit of land has been passed. In a system of animal husbandry which is not self-supporting in the maintenance of fertility or in the supply of feed for stock, the economy of use of raw materials may be at least as important as the economy in use of land, and again it appears that increasing returns per unit of input of raw materials may counteract diminishing returns on land alone. The influences of the varying amounts of the three factors in the combined total input inter-act, and in some parts are counter-acting. The analysis of the factors in the determination of results requires a separation of the factors and an attempt to measure the approximate influence of each on the total result. The farmer needs to know the results of given combinations, and the probable results of variations in amounts of any one or more factors in the combination. He is obliged to make estimates or to draw upon his experience of changes made in somewhat similar circumstances. But the results obtained from the use of inductive methods of analysis of different combinations of land, labor, raw materials etc. should provide a far more accurate measure of probabilities than any estimate or any general consideration of past experiences. The use of inductive methods involves the introduction of the *ceteris paribus* of the classical economists and a method must ultimately be evolved which will enable the investigator to eliminate the inter-effects of forces so that the behavior of any one element can be understood and, in so far as this is possible, the independent action of forces can be examined.

Data obtained from small pastoral farms in Wales provide an opportunity of examining the relationships between land, labor and raw materials, where opportunities for labor-saving are few or of little importance. The information was obtained during the period 1929-31. The holdings are distributed over Wales and

the systems of farming pursued on them are typical of the regions from which the farms were drawn. On all the farms several enterprises are carried as none of them specialize in the production of any one product. On all the holdings a few dairy cows are kept and in general some stock raising is carried on; sheep and pigs are present on most of the farms together with some poultry. Horses are always kept as they are needed for the farm work but horse rearing is now uncommon.

On the whole a considerable proportion of the manual work is done by members of the families and where hired labor is employed, especially on the smaller farms, it supplements rather than displaces the family labor. In consequence the incomes obtained by the farmers from their holdings are very largely returns for the manual labor performed, together with some reward for managerial work.

The problem of management, from the economic standpoint, on diversified farms is not essentially different from that on holdings which are specialized. In the majority of cases the difference is only one of degree. If certain advantages are offered in one line of production and these definitely outweigh those in other possible enterprises, it is generally expedient to specialize. But on the other hand, certain advantages can be derived by combining several enterprises so that they are either supplementary or complementary to one another. In choosing any system of farming, or any combination of systems, farmers have always to consider the nature of the relationships between various departments of the farm. On the farms investigated, in general, it appears that the advantages offered to the business as a whole, by the judicious combination of numerous departments, more than outweigh those offered by specializing in any one line of production.

The most important resources used in the processes of production are land, labor and raw materials, and when the money values of these are compared it is found that the second is in general the most important. The total money value of all the resources entering into production on a farm can be considered as the total input and this is synonymous with the money cost of producing all the commodities raised on a farm. The relation between the total cost and the value of the output is of great importance to every farmer as it determines the amount of profit made.

But as farmers incur expenditures on several different kinds of resources it is essential to know what return they receive for

the outlay made on each so that they may be better able to adjust their expenditure. When the money outlay made upon a farm is divided into the money value of the goods produced the resultant figure indicates the ratio between them, and in the table below the farms are grouped on the basis of the value of the output per £1. of expenditure. It is obvious that there is a very close relationship between this factor and the average incomes made per acre.

TABLE 1.

Groups	Gross output per £1 gross input	Actual Gross output per £1 gross input	No. of farms	Incomes per acre
	£.	£.		£. s. d.
A	Over 1.49	1.59	20	3. 7.7.
B	1.49 to 1.05	1.28	20	1. 7.2.
C	1.04 to .94	1.01	19	0. 6.3.
D	Under .94	.91	12	−1.12.3.

It is however apparent that the ratio between output and input is not of itself an adequate explanation of the differences in the incomes made on the holdings. The ratio is 24 per cent higher in the first compared with the second group but the average income is far more than proportionately greater. Again there is an improvement of 27 per cent in the ratio between the second and third group but the average income figure is over 4 times larger. Some significant differences in the efficiency of

TABLE 2.

Groups	Incomes per acre	Gross output per man equiv.	Gross output per £100 total invest.	Gross input per £100 total invest.	Man equiv. per 100 acres	Animal units per 100 acres	Animal units per man equiv.	Cattle output per £100 cattle invest.	Dairy produce output per £100 cattle invest.	Sheep output per £100 sheep invest.
	£. s. d.	£.	£.	£.				£.	£.	£.
A.	3. 7.7	315.1	79.3	48.7	2.9	56.4	19.9	64.2	73.5	76.4
B.	1. 7.2	249.3	64.0	50.0	2.3	45.4	19.2	39.5	36.3	64.9
C.	0. 6.3	195.1	55.8	55.7	2.3	39.3	17.5	39.4	39.0	44.1
D.	−1.12.3	120.8	51.3	57.8	3.5	41.1	11.9	45.8	22.9	56.0
Mean	1. 2.4	231.3	64.2	52.5	2.6	45.2	17.9	46.4	43.8	63.4

management between the groups of farms can be gleaned from Table 2.

The three groups of farms showing profits do not show wide variation with regard to the amount of labor available upon them, but the group of holdings suffering losses have, on the average, a much heavier labor complement than the others. High production per man is in general closely associated with high incomes per acre and it appears that efficiency in the use of labor is of

supreme importance in the management of these farms. The amount of livestock carried is again correlated with income and also with the amount of labor available on the farms. One of the most significant differences between the groups of farms is the productivity of the cattle and sheep. These classes of stock were included in the inventories at figures as near as possible to their market values, but when these values are taken as a basis, it is apparent that the output obtained shows conspicuous variations. Farmers making the highest incomes have undoubtedly worked their holdings more intensively than the others. Intensity of working of course does not necessarily mean heavier applications of capital and labor to land. Production may be intensified in other ways such as heavier feeding of cattle or of other stock. Farms suffering losses were stocked comparatively lightly, they carried, on the average, just over 15 animal units per 100 acres less than the holdings showing the highest profits. Again the output of cattle and dairy produce per £100 invested in cattle was comparatively small in Group D, in spite of the fact that on this group of farms there was more labor available than on any of the other farms.

It is evident from the results shown in Table 2 that the high income farmers worked their holdings most intensively. The productivity of the cattle and sheep was higher and in general an output of greater value was obtained. This is conspicuously so when output is measured per £100 invested in working capital and per man employed. It appears that the most profitable farms are being worked nearer to the point of optimum returns than the others, but it cannot be inferred that diminishing returns were being obtained from the expenditure of labor and capital upon them.

Again it is important to realize that increasing or diminishing returns may come into play in several different ways. The application of the optimum amount of labor and of feed to productive stock is important from a business standpoint and it is obvious that on the farms under examination considerable variations obtain in the amounts applied. Farmers of course, do not know how much expenditure can be made with advantage as they have no guidance except past experience. Expenditure on a farm is made in several different ways such as for labor, feed, manures etc. and it is important that farmers should know in what proportion to combine these resources so that they may obtain the maximum advantage from the outlays. The amount expended on a farm determines to a large extent the output of the holding;

the expenditure can conveniently be called the input and it is of interest to see how far, and to what extent, the amount of input influences the amount of output. Three of the most important input elements on these farms have been taken and an attempt is made below to find what effect they have upon output. The input factors are measured in terms of their money values; the rent paid per acre is taken as the input of land and the expenditure on labor and on raw materials are examined separately.

By the method of correlation analysis it is possible to measure what contribution these three input factors severally make to the output on the farms.

The following are the variables used.

X_1 Gross Output per Acre.
X_2 Rent per Acre.
X_3 Labor Input per Acre.
X_4 Input of Raw Materials per Acre.

Taking X_1 as the dependent variable a multiple coefficient of correlation, R, of 0.91 was obtained, this indicates that just over 80 per cent of the gross output of these farms can be accounted for in terms of three causal variables. Moreover, as the sample is not small, it can be inferred with a high degree of certainty that on similar farms in the area over three-quarters of the gross output obtained can be explained when the amounts used of the three input factors are known. The simple coefficients of correlation are,

$$r_{12} = +0.37$$
$$r_{13} = +0.59$$
$$r_{14} = +0.88$$

The degree of correlation between the dependent and the several independent variables as shown by R (coefficient of multiple correlation) does not measure the importance of the several variables in the problem. Some of the simple coefficients are comparatively high, and this indicates that output, the resultant factor, is to an appreciable degree influenced by variations in the amount of labor and of raw materials used. The relation between output per acre and the rent paid does not seem to be close; it is generally asserted that land of high productivity commands a high rent, and in general this is true, but on the farms under examination the relationship between output and the productivity of the land as measured by rent does not *prima facie,* appear to be as important as that between output and the other input factors.

The relative importance of some of the input factors may, however, influence to some extent the degree of relation between the variables under discussion. Over all the farms it was found that the total input was distributed as follows: land (as measured by rent) 16.6 per cent; labor 43.4 per cent; raw materials 24.5 per cent; machinery 3.7 per cent; while all other items accounted for 11.8 per cent of the total. It is significant that, on these small farms, for every £1. expended on the items that enter into costs of production, machinery only amounted to 9d. whereas labor equalled 8s. 8d. It can be seen therefore that, as compared with other industries or with specialized farms, comparatively little of the farm work has been relegated to machinery. Yet the introduction of machinery on a large scale would be of doubtful financial advantage; the system of farming pursued is of such a nature that only a few operations can be profitably performed by machinery. From a physical standpoint, however, a great deal of the work could be done by mechanical methods, but it is usually small in amount and consequently the necessary investment would hardly be justified.

The simple coefficients of correlation do not indicate the true relationship between the causal variables and output, as any mutual correlation between the causal variables may obscure the true relationship. In order to measure the importance of the independent variables separately the partial coefficients of correlation have been calculated; any straight line relationship between the independent variables and output is therefore eliminated.

The partial correlation coefficients have the following values:

$$r_{12 \cdot 34} = +0.46$$
$$r_{13 \cdot 24} = +0.37$$
$$r_{14 \cdot 23} = +0.76$$

Even when the linear tendencies of the remaining independent variables (X_3 and X_4), have been allowed for the correlation between rent and output is not high; but of course many factors may exert influences upon the rent paid for a farm and some of these may be as important as the productivity of the soil in the determination of its rental value.

Figure 1 indicates that it is on the highest rented holdings that factors other than fertility appear to be of greatest importance. Farms close to a market or railway station, or even a good main road, may command relatively high rents although the fertility of their land is low.

With regard to the relationship between output and labor input

more concise inferences can be made than between output and rent. On the holdings under examination it is clear that efficiency in farm management resolves itself very largely into the utilization of labor. The correlation between labor input and output, however is not high, even after the elimination of the disturbing influence of other independent variables. It is true that farmers showing relatively high incomes use more labor than the low income ones, but the higher output on the most profitable holdings is only partly due to the labor employed upon them. The output is obtained partly from the contributions made by other input factors; the information sought therefore is the

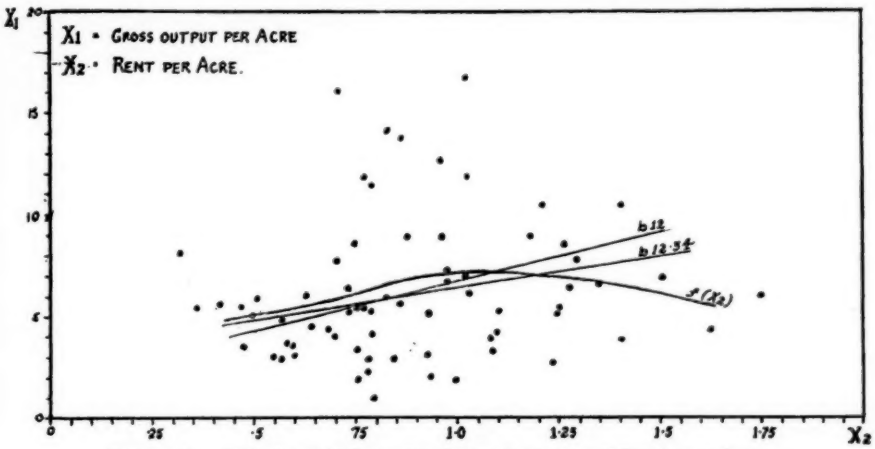

FIGURE 1.—Relationship between Gross Output and Rent per Acre.

net effect of labor upon the output. The average result on output of increasing the input of labor can be seen from Figure 2. The net regression line, $b_{13 \cdot 24}$, indicates that on the whole expenditure on labor is not recouped. It follows, therefore, that on holdings paying the same rent and where similar quantities of raw materials are used it would not be remunerative for the farmers to incur heavier expenditure on labor, and there is strong *a priori* evidence, that on some of the holdings, the outlay on labor is too heavy compared with that on other resources at the disposal of the farmers.

The curve in Figure 2 shows that on farms where comparatively heavy expenditure on labor is incurred each additional increment is accompanied by a relatively large increase in output. This additional output is of course only partly due to the additional labor input, but the fact that output shows the largest in-

crease per unit of labor input on the most intensively worked holdings indicates that labor is used to greater advantage upon them than on the others.

The partial coefficient of correlation between output and expenditure on raw materials is high ($r_{14 \cdot 23} = 0.76$). This indicates that in general output is high where comparatively large quantities of raw materials are used. The net regression line of output on input of raw materials can be seen in Figure 3, and it is apparent from the slope of the line that, on the average, outlays on raw materials have proved very remunerative. Although more labor is used on the intensively worked farms, more than proportionate quantities of raw materials are also used; the labor

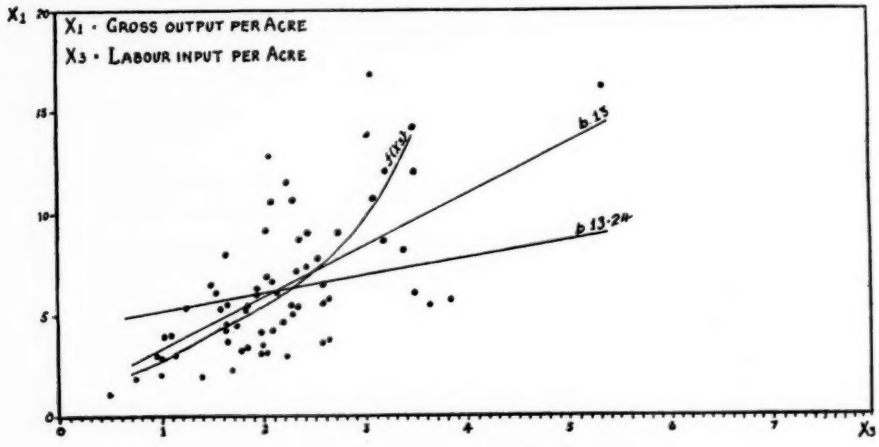

FIGURE 2.—Relationship between Labor Input and Gross Output.

force on these holdings, as was seen in Table 2, handles greater areas of land, more livestock and more raw materials. It is clear, therefore, that on holdings showing a high output intensity of working resolves itself into using slightly more labor but less relatively to amounts of other input factors.

Output is the result of the combined contributions of all the input factors, and the information sought is the individual or separate effects of adding more of any one input upon the output. The most satisfactory result from a farmer's viewpoint is only attained when the input factors are blended in the most suitable proportions to meet particular circumstances.

Diminishing returns in agriculture have been much discussed in the past and the results of applying increasing amounts of capital to land have been closely examined. This particular ap-

plication of diminishing returns is of great importance from some standpoints, yet it is questionable whether its importance is so great when the financial interest of the individual farmer is under review. The farmer wishes to know the relevance of this principle to his total business and not only in one but in all its possible aspects. When the factors of production are considered in terms of price or value, it is of equal importance that the return to expenditure on any one resource be as favorable as that on the others. Moreover, when two or more elements are combined in a production process, a diminishing return will be obtained from the one that is present in greatest amount relative to

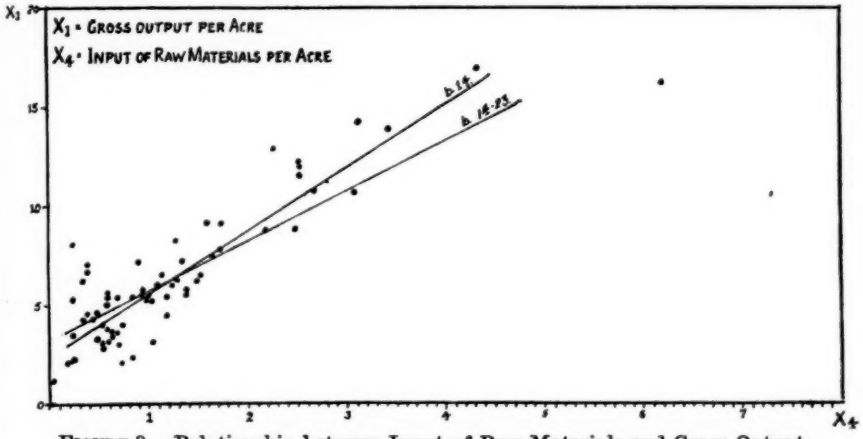

FIGURE 3.—Relationship between Input of Raw Materials and Gross Output.

the proportion that would result in the highest efficiency of working.

To consider the results of different applications of capital to land, or labor to land, is to omit a very large part of the problem of diminishing returns as it confronts the farmer. It is necessary to find the effects of adding more or less of any one kind of input, as the return to total input is very largely the result of the separate contributions made by the several different resources used.

A further examination of the significance of expenditure on labor in the production processes on these farms may be gleaned from Figure 4. When the farms are arrayed by increasing input per acre and a line is fitted to show the average percentage of labor input to total input it is seen that the figure falls from 49 per cent to 35 per cent as one passes from the least to the most intensively worked holdings.

In Figure 5 the farms are again arrayed by increasing input per acre; a line is fitted to the average output per unit of input obtained for each holding. It is seen that on the most intensively worked holdings there is only a small return for each £1. expended. The return falls from about £1.5 on the comparatively extensively worked farms to just below £1.2 at the other extreme. It is apparent therefore that farmers who adopt comparatively extensive systems make bigger profits on every unit produced. In fact for every £1. expended on the average a return of about £1.10. 0. is obtained, but the number of units of output are few per acre. On the other hand the intensively worked holdings show a smaller return per unit of input; it falls in fact to just below

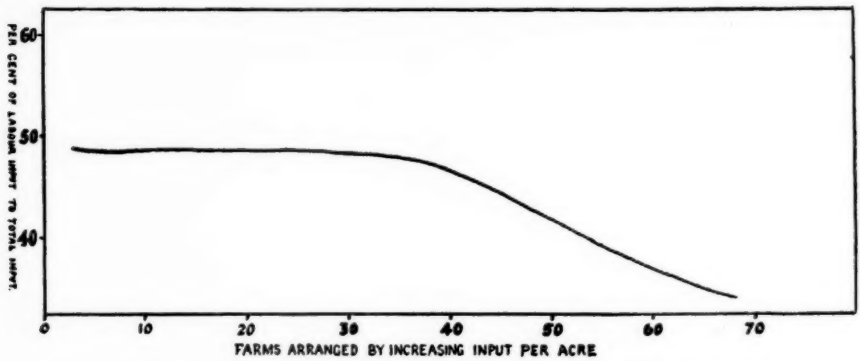

FIGURE 4.—Relationship of Labor Input to Total Input.

£1. 4. 0. for every £1. expended. Farmers can, however, show good financial results by working on either wide or narrow margins, or in other words, a wide margin of profit on a few units of product could yield the same total income as a narrow margin on a comparatively large number of units. In Figure 5 the results are presented graphically; the continuous line indicates the average return obtained by the farmers for every £1. expended on resources, and shows that the return falls gradually as one passes from the least to the most intensively worked holdings. The broken line shows the return per unit of input multiplied by the number of units of output; this line is appreciably higher for the farms intensively worked and rises to the region of £3. per acre. The results agree with those submitted in Table 2; incomes are about £3. per acre on the most profitable farms. These high income farmers receive a smaller return per unit of input but they make larger incomes as a result of working their holdings more intensively. Intensity of working has meant car-

rying more stock, applying more raw materials and also employing more labor per acre but proportionately more raw materials than labor and increasing returns have been obtained to applications of the former.

It is always important that proper emphasis be placed upon a particular aspect of a problem according to its significance in the situation under examination. In this analysis the principle of increasing and diminishing returns has been considered in its financial aspect from the standpoint of the farmer. As labor

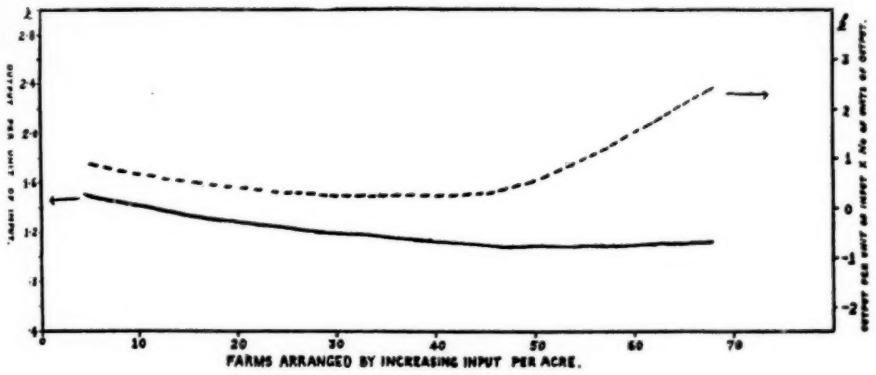

FIGURE 5.—Output per Unit of Input.

forms such a large proportion of the total outlay made by farmers in Wales the return they obtain for such expenditures determines in a large measure the profitability of their businesses and it is apparent that success has followed the efforts of those who have endeavored to adjust expenditure upon resources in a way which enables them to avoid obtaining a diminishing return to labor. In view of the importance of the outlay on labor on these holdings a diminishing return to expenditure upon it would be of greater significance to the farmer than a diminishing return to other resources.

THE CALIFORNIA AGRICULTURAL PRORATE ACT[1]

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The agricultural prorate act, passed by the California State Legislature in the spring of 1933, is really the culmination of a half century of experience with cooperative marketing and other schemes designed, in part at least, to serve the purpose of controlled marketing. Like many of the other western states, California is dotted with valleys, large or small, in which special crops are produced for shipment to distant markets. By special crops I mean crops other than the regular grain crops grown on very large areas throughout the country. Even a widespread general crop at times may assume the status of a special crop under such situations as obtain in the western states; for example, the Gravenstein apple crop is a special crop in that it is produced before other apples are on the market and in a restricted area. Similarly, Kern County potatoes are early potatoes produced in a concentrated area for shipment to relatively distant markets during a very short season. Such other crops as Imperial Valley lettuce or Salinas Valley lettuce are, of course, specialties in the more real sense of the word.

Throughout the period of half a century, many groups of California producers have faced chronic conditions of overproduction in the sense that at almost any time there were excess acreages in many crops. With plantings of fruit increasing rapidly, even a year of normal yield was a year in which the chauvinistic booster of western America might point with pride to "the biggest shipments on record." But if production was increasing more rapidly than demand, such shipments invariably meant a loss to the producers since markets were being crowded beyond their capacity to absorb at prices satisfactory to producers. A characteristic of the market for perishables produced at a distance from the point of consumption is violent price fluctuations. Thus, although a bumper crop may reduce wholesale prices in New York or Chicago only 30 per cent, prices f.o.b. California may fall 66 per cent and producers' net returns may actually vanish.

Discussions of market control have featured every move to form a statewide or regional organization since the establishment

[1] This paper was read at the meeting of the Western Farm Economics Association, Berkeley, California, June 22, 1934. Paper No. 56 of the Giannini Foundation.

of the California Fruit Union in 1885.[2] A study of the history of cooperative marketing in the raisin industry, in the prune industry, and in fact in almost every industry in which there has been an attempt at widespread cooperation, reveals this motive for controlled markets.

Out of the recognition that cooperative marketing cannot accomplish the desired control, came the so-called clearing house movement, an elaboration of the cooperative idea for the inclusion of shippers and packers. These movements were to be industry-wide. Some did and some did not include provisions for surplus control, although the motivation back of most of these movements was the desire to control. Usually there was the naïve notion that mere holding for a price would get the desired result.

In recent years there have been a number of attempts at surplus control by the disposition of part of the crop. Among these were the Sun-Maid Raisin Growers' attempt to manufacture surplus raisins into syrup, the plan followed by the California Fruit Growers' Exchange for the manufacture of surplus lemons into by-products, and the cling peach and grape plans of allowing part of the crop to remain in the field. Each of these plans brought into clear relief the advantageous position of the non-cooperator. This point was brought out with special clearness in the case of the Tokay grape control plan set up in the fall of 1932. The Tokay plan, in fact, deserves a bit more discussion because it is in reality the "jumping off place" for the prorate act.

These grapes are produced principally in a small area in the region of Lodi, California. In the spring of 1932 a group of growers had asked the Giannini Foundation to make a study of the Tokay grape marketing problem. Later in the summer of 1932 while this study was going on it became fairly obvious that returns would be unsatisfactory because the crop was large. Growers recalled that the 1930 shipments of 7,670 carloads sold at an average of $1.14 a package, and that the smaller crop of 4,109 carloads in 1931 sold at $1.59. With marketing and harvesting expenses averaging about $1.03 a package, this meant that the large crop in 1930 netted producers approximately $750,000, while the small crop of 1931 netted more than $2,000,000.

In the meantime, plans were developed for a voluntary prorate of shipments during that season. Shippers, representing 85 per cent of the crop, agreed to cooperate in the plan. The scheme worked well during the first three weeks, but operations were

[2] See Kraemer, Erich and Erdman, H. E., *History of Cooperation in the Marketing of California Fresh Deciduous Fruits.* Calif. Exp. Sta. Bul. 557. 1933.

given up at the end of the fourth week because by that time the non-cooperating shippers, who had only 15 per cent of the tonnage were actually making 50 per cent of the shipments.

With the discontinuance of this plan, discussion immediately was renewed as to the possibility of handling the small percentage of non-cooperating growers or shippers. There had repeatedly been discussions of compulsory cooperative marketing. This was renewed during the summer of 1932. The question was repeatedly raised as to why a small minority should be permitted to do in the marketing field what it would never be permitted to do in such a program as road building or public school building; namely, refuse to participate, and in fact benefit by refusing to cooperate. Finally, two requests were made to the University that the whole problem be studied. Dr. E. A. Stokdyk was assigned to the job and early in 1933 prepared a report entitled "Economic and Legal Aspects of Compulsory Proration in Agricultural Marketing."[3] Publication of this report and the ensuing discussion of the suggested law led to its enactment by the California Legislature late in the session of 1933.

What the Act Provides

The act provides for restriction of marketings of a specified crop in any given area when two-thirds of the farmers controlling two-thirds of the acreage involved are in favor of control, and provided, further, the Prorate Commission approves thereof. The act is distinctly different from compulsory cooperation schemes in that both private and cooperative marketing agencies are free to operate as they please except as to quantity shipped.

Growers' approval may take the form of a sign-up by two-thirds of the growers controlling two-thirds of the acreage, as has been done in the various plans so far set up, or by a two-thirds vote of all the producers concerned in the proposed zone.

A word might be said about the constitution of the Prorate Commission. It consists of nine members. Four of them are producers of agricultural commodities, one is an experienced commercial handler of fruits and vegetables, another a cooperative marketing handler, one an agricultural economist, and one an agriculturist employed by a metropolitan chamber of commerce. The last two supposedly represent consumers. The appointments are made by the Governor for a term of four years, the terms

[3] First issued in mimeographed form in March 1933 and later published as Bul. 565 of the California Agricultural Experiment Station.

being staggered so that not all of the appointments expire at one time.

Upon presentation of a petition for the institution of a program of prorated marketing with respect to any variety or kind of agricultural commodity, the Commission is required to hold a hearing at some central point at which it will receive and hear the evidence offered by the petitioners and by any interested person in opposition. These hearings may extend over such time and may be adjourned from place to place as circumstances may require. The Commission is particularly instructed to ascertain the following:

"(1) That the petition is signed in person or by proxy by the required number of producers and by the owners of the required number of producing factors; (2) that the economic stability of the agricultural industry concerned is being or is about to be imperiled by the prevailing market condition; (3) that agricultural waste is occurring or is about to occur; (4) that the institution of a program of prorated marketing will conserve the agricultural wealth of the state and will prevent such economic waste; (5) that the institution of a proration program as proposed in the petition will advance the public welfare without injustice to any producers; (6) that the proposed program may be instituted and conducted without permitting unreasonable profit to the producers and that the commodity named in the petition cannot be marketed at a reasonable profit otherwise than by means of such a program; (7) that the proposed zone of proration includes all of the producing territory within this state reasonably necessary to render the proposed program feasible."

If all of the above are found to be part of the situation, the Commission is required to call an election for the proposed zone, if an election is requested, to ascertain whether in fact two-thirds of the producers are in favor of such a program. If, however, it is shown that two-thirds or more of the producers controlling two-thirds or more of the producing acreage have in fact signed the petition, no election need be held. When the Commission finds that the necessary conditions have been met, it declares such program adopted. Any interested party who feels that the plan will injure him may obtain a court review of his case up to thirty days after the effective date of such order.

When the Prorate Commission has approved of the institution of a prorate program, the next job is that of selecting a proration program committee of five producers and two handlers operating within the zone. If any marketing agency controls more than one-fifth of the production within a zone, it is to be entitled to name such proportion of the members of said committee as its control of production, except that it may not name more than three of the producer members. It is further provided that if the commodity is

largely to be processed before consumption, one of the producer members of said program committee shall be a processor. The program committee, in turn, must appoint an agent approved by the Commission, who is to administer the proration program in that zone on behalf of the committee.

The expenses of the Prorate Commission, of the program committee, and of the agent and his helpers, are to be met by charges levied on prorate certificates which are to be issued so that each commodity under control will presumably bear its entire expense and carry its share of the expenses of the Commission as well. In order to make sure that the Commission is not pestered with petitioners whose requests could under no circumstances be granted, each petition must be accompanied by a substantial deposit sufficient to cover the cost of hearings (and elections, if requested). This provision doubtless explains the fact that all of the petitions presented to date have contained sufficient signatures to avoid an expensive election.

Two lines of action are open to the Commission in connection with the enforcement of any program approved and made effective by its action. One of these is the provision that any violator may be enjoined in the Superior Court for the county in which the violation is alleged to be occurring. In the second place, any violator is liable to fine in the civil courts to the amount of $500 for each and every violation.

Once a proration program has been instituted it remains in effect unless there is filed with the Proration Commission an application for its termination signed by not less than 40 per cent of the producers or of the production of the prorated commodity. Or the Commission itself may at any time initiate an investigation on its own motion to determine whether or not the conditions on the basis of which the program was initiated still obtain. Presumably, any objector might raise the question with the Commission, and if it felt any merit lay in the objection, it could, through its executive secretary, make a sufficiently careful investigation as the basis upon which to decide whether or not to discontinue the proration plan in a particular case.

Procedure in Prorating a Crop

The first job of the proration program committee is to formulate a proration program which must receive the approval of the Commission and which can be amended only with the approval of the Commission. The committee must determine what is the size of the crop and what is the proportion which can be mar-

keted. The programs thus far formulated have been sufficiently general to permit modifications as conditions have changed. Following is the program for prorating potato shipments:

Program for Prorated Marketing of Potatoes

1. Each grower must forthwith obtain a primary certificate covering all acreage of potatoes which he proposes to harvest during the current season. No secondary certificates shall be issued except to holders of primary certificates.

2. Each grower shall at such times as may be prescribed by the program committee, furnish such committee with an estimate of the potatoes which he will have available for shipment during an ensuing designated period. Such estimates shall be subject to an independent check.

3. The program committee shall have the power from time to time to determine what proportion of his crop each individual grower may be permitted to market, but any proration applied shall be limited to intrastate marketing only.

4. Each regulation governing proration shall apply proportionately and without discrimination to all growers.

5. The program committee shall have the power to prescribe reasonable proration periods.

6. The program committee shall have power to order shutdowns of one, two, or three days upon giving 24 hours notice, when in the opinion of the committee such shutdowns are necessary to prevent market gluts and prevent waste.

7. The program committee shall have the power to issue secondary certificates on a daily basis if necessary.

8. Each shipment of potatoes shall be accompanied by a secondary certificate.

The method of controlling the crop is by the issuance of certificates which must accompany each shipment or sale. The general plan is for each producer to be given one certificate covering the appraisal of his entire production. Then there is a secondary certificate which authorizes the harvesting or preparation for market of a certain quantity of a crop, and this certificate must accompany any shipments to market. Following are the forms used in the second lettuce zone established:

PRIMARY PRORATION CERTIFICATE NO.

.....193....

Issued to ..... covering ..... acres as per list on reverse side. This certificate is transferable. Secondary proration certificates will be issued only to an authorized holder of this primary certificate upon its presentation.

Note: It is a misdemeanor to harvest, pack or ship lettuce produced within Lettuce Proration Zone No. 2 unless the required Secondary Proration Certificates have been issued authorizing the same.

.....
Zone Agent

SECONDARY PRORATION CERTIFICATE NO.

.....193....

This Certificate, issued under *Primary Proration Certificate* No. ....., entitles ..... to harvest, pack and ship ..... crates of lettuce (dry pack) (under ice) on ..... only.
Date

This Certificate must accompany the shipment.

(This Certificate is subject to cancellation upon 24 hours notice by Zone Agent)

.....
Zone Agent

Transferable by Assignment on Reverse Side

Proration Activities Under the Act Thus Far

The first instance of actual proration under the prorate act was inaugurated for the Imperial Valley lettuce crop. In January 1934 it became evident that the proposed marketing agreement under the agricultural adjustment act would not be made effective, and that markets were becoming more and more demoralized as the lettuce season got into full swing. A petition for a prorate program for Imperial Valley lettuce was presented to the Commission on January 9 and a hearing was promptly set for January 22. It was shown that two-thirds of the growers and two-thirds of the acreage favored the institution of a proration program, and that, furthermore, the market could not absorb all of the lettuce which would be available during the remainder of the season at prices which would permit the growers to break even. There was some objection to the program at the hearing but no formal opposition developed. On January 23 the Commission approved the findings of Chairman McFadden, who had held the hearing, and immediately appointed a proration program committee, naming the men whom the growers had previously selected at a mass meeting.

The proration program committee at once formulated a program which was approved by the Commission. It then appointed a zone agent to handle the administrative job as well as a number of inspectors to check up on crop estimates of producers.

The program approved by the Commission provided that there might be a complete shutdown, and this was the policy adopted in order to clear the eastern market where cars had accumulated on railway tracks. An interesting problem of enforcement immediately arose when one of the shippers announced that he would

continue to ship in spite of the shutdown order. Upon the authority of the Commission, the program committee went to the Superior Court of Imperial County and obtained a temporary restraining order prohibiting the particular shipper and several others, including the two railway companies from violating the proration program, and ordering them to show cause at a later date why the temporary order should not be made permanent.

The order was granted on the twenty-seventh of January, and on March 1 and 2, after a hearing, was made permanent. This was the first test of the constitutionality of the act. During the rest of the program, curtailments ran as high as 70 per cent. The unusually heavy curtailment program became necessary because, while Imperial Valley weather conditions were unusually favorable for production, the East was suffering from a severe blizzard so that market demand was extremely slack, a most unusual coincidence, well illustrating the type of situation for which a proration program offers a remedy.

In addition to the lettuce prorate plan in the Imperial Valley, prorate plans were later adopted in the Santa Barbara and San Luis Obispo counties' lettuce producing region, in the Kern County potato shipping region, and one will soon be in operation in the Gravenstein apple district in the Sebastopol-Santa Rosa region.

There was no curtailment under the plan in the Kern County area because prices of potatoes have held up well thus far. The committee was ready, however, had any action been needed.

An interesting feature of the Gravenstein apple scheme is the arrangement for coordinating it with the proposed marketing agreement under the agricultural adjustment act. The plan is for the program committee to act also as the control board provided for under the marketing agreement. As a result, both the intrastate and the interstate aspects of apple distribution can be handled by the same group of men. It is not likely that much use will be made of either plan this year because the crop of Gravenstein apples will be very short.

What May Be Expected of the Prorate Act

The prorate act promises a solution for the sort of problems involved where special crops are produced in concentrated areas and shipped to distant markets. In most such instances there are wide variations from year to year in total production, wide variations in market demand, and frequent peaks in rate of shipment when markets become badly demoralized. Such situations can

be handled under the prorate act and the burden of control shared equally by all members of the group.

It is doubtful whether the prorate act is applicable to crops produced in small, scattered units, particularly if they also have a fairly substantial local outlet. The act was discussed last fall by a group of Youngberry producers. The group finally decided that it was hopeless to consider a proration program for this crop because there are large numbers of small patches of berries scattered over much of several counties in the valleys and on the coast above Los Angeles. Many of the growers sell directly to retail grocers, many sell at roadside markets, and many sell small lots to jobbers in Los Angeles and San Francisco. It has been estimated that as much as one-third of the crop in one of the major districts is at times sold at roadside markets. Under the circumstances it appeared that the job of policing would be unduly expensive, if not utterly impossible, except for berries sold through fairly large jobbers and retailers.

Consumers are of course interested in the question of whether or not they are to be overcharged. Presumably, they have protection in that certain members of the Prorate Commission are not producers, and are supposedly selected to represent consumers. They, likewise, have protection in that producers have volume to sell and, in most cases, can market fairly substantial volumes at low prices more profitably than they can sell a small volume at high prices. There are, therefore, limits to even the short-time exploitation of the consumer. The long-time question concerns the extent to which production will be increased, if prices are maintained at unduly profitable levels. If such a procedure remains permanently available to California producers or to those of any other state, the policy will very definitely have to be one of establishing prices at such a point as not to increase production by making controlled crops unduly profitable compared with other crops or products, either in the state concerned or in other states. A controlled price so low that it does not bring forth increased supplies cannot be considered inimical to consumers.

The experience with surplus control elsewhere is that producers are likely to overemphasize the so-called "sunk costs," that is, their overhead in particular situations. They commonly fail to recognize the fact that they must meet the competition of producers in new sections operating on cheap land, or those anywhere adopting improved varieties, improved methods, or machine production with large-scale operation, etc.

Conflicts of Interest

It has been interesting to see the extent to which California farmers are being educated in the economics of price in connection with discussions of crop control. It is not uncommon to have them discuss prices and shipments in terms of supply-price schedules, shifts in supply-price curves, or total value curves. The application of statistical method to the analysis of such problems and the presentation of the results in understandable form should do much to avoid application of such plans to impossible situations, abuse of plans by over-restriction, or continuance when breakdown is threatened.

An interesting aspect of proration control arises out of the conflict in point of view between producers, on the one hand,

TABLE 1. PROBABLE PRICES AND TOTAL RETURNS BY SHIPPING VARIOUS QUANTITIES OF TOKAY GRAPES IN 1933

Assuming demand as the same average for the 1932 season

Weekly shipments for state		Weighted average delivered auction price per lug	Net to grower on vines per lug	Net to community per lug	Total returns to growers	Total returns to community
Cars	Packages					
200	176,400	$1.43	$0.41	$0.71	$72,324	$125,324
250	220,500	1.35	0.33	0.63	72,765	138,915
300	264,600	1.28	0.27	0.57	71,442	150,822
350	308,700	1.22	0.21	0.51	64,827	157,437
400	352,800	1.16	0.16	0.46	56,448	162,288
450	396,900	1.09	0.09	0.39	35,721	154,791
500	441,000	1.03	0.04	0.34	17,640	149,940
550	485,100	0.98	−0.01	0.29	−4,841	140,679

and shippers and packers on the other hand. This is brought out clearly in Dr. Stokdyk's analysis of the Tokay grape-price relationship.[4]

The study of the supply-price relationship on a weekly shipment basis is indicated in table 1. The last two columns show, respectively, total returns to growers and total returns to the community. Those are obtained by multiplying the respective schedule items for number of packages shipped by the schedule items for average net returns to growers and the f.o.b. prices. It will be noted that the highest estimated return to the growers is obtained by shipping 250 cars a week, whereas the highest return to the community is obtained by shipping 400 cars a week. Since the shipping firms to a very considerable extent ship on a consignment basis, usually on the basis of 7 per cent of the returns at destination or 10 per cent of the f.o.b. returns, it is to their interest to adopt the community point of view which would

[4] Stokdyk, E. A. Marketing Tokay grapes. California Agr. Exp. Sta. Bul. 558. September 1933.

give them the highest total commission, whereas the growers are likely to favor the smaller volume.

The same divergence in point of view exists in connection with the proposed pear-control plan. Analysis indicates that growers may expect that highest returns for fruit on the ranch might be obtained in a particular season by restricting shipments to a given number of cars for the season, whereas shippers, operating on a basis of 7 per cent of delivered prices, would get highest gross commissions and doubtless highest net returns by shipping much larger quantities.

An analysis of the operating costs of a large pear-packing association indicates that the same reasoning applies in that case.

Some divergence in point of view has developed between large and small producers. A part of this has been based upon the assumption that the little fellow should be given some preference because he needs it. I am inclined to believe there is an economic divergence in point of view here resembling that between shipper and producers above-mentioned. The small producer who depends entirely upon family help finds that a curtailment program leaves him with unused labor which must nevertheless be clothed and fed—a sort of overhead cost.

It has been a matter of common observation that, although most of the curtailment activities in the past have been on the part of the large shippers, many of them have continued to ship as long as there was a reasonable certainty that they would not get what is called "red ink," i.e., bills indicating insufficient returns to cover marketing costs. The result was that the markets were crowded with so much stuff that in many years the producers got very little in the way of net returns, whereas of course the shippers got their packing charges, made their profit on boxes and shook, and generally utilized their plants to capacity, in addition to having received their commission charges. It is not surprising, therefore, that these alignments have stood out rather frequently in discussions to develop restriction programs.

It has frequently been argued that if shipments were restricted to high quality product, no proration plan would be necessary. This does not seem feasible nor fair, however, because there are many producers who have relatively low-grade products produced on cheap land, making these producers a reasonable living, and produced where first-grade stuff could not be produced. Curtailment, which would eliminate number two stuff from the market, would bar the entire crop of such producers. It would be

particularly unfair in the case of such commodities as walnuts, where the matter of grading is partly on the basis of appearance of the nut meat. One of the heaviest elements of weight in the grading of walnuts is the matter of color of kernels; while a kernel is just as edible if a bit dark in color, the market does not take it at as high a price. Likewise, the market will not pay as high a price if the percentage of blank kernels or shriveled kernels is large. The good nuts in low-grade stuff are, however, just as edible as the better nuts and just as attractive to many consumers, provided they can be purchased cheaply enough to offset the comparatively higher percentage of blank shells, and provided, further, that the purchaser is not particular that the meats be light amber color. There is no clear-cut justification, therefore, for the exclusion from the market of the producers of low-grade stuff, provided it is sold according to grade.

The certificate plan for surplus control provided by the act eliminates the question of quality, provided the certificates are freely interchangeable. Assume, for example, that a producer of lettuce finds that his quality is running low, whereas another finds that his quality is running high. Each, let us say, has certificates covering 80 per cent of his crop. One has shipped 80 per cent of his crop and still has another 10 per cent of high-quality stuff suitable for shipment. The other has shipped 70 per cent of his crop and has no more high-quality stuff available, but has certificates to cover another 10 per cent. The man with a superior quality could very easily afford to buy for a few cents a package the certificates of the producer with the poor-quality stuff. Normally, this poor-quality stuff would be shipped, even if it were to bring back only 10 cents a package. The man with the better supply might, however, be willing and able to pay 20 cents and still make an additional profit.

In discussions of the certificate plan, many growers have apparently thought of this extra payment as a tax of some sort. In reality, it would constitute a sort of rent.

A free exchange of certificates was opposed by some of the producers and others in some of the recent discussions on the ground that a man who had certificates for sale had been granted too large an allotment, that he must have reported his crop at too high a figure, etc. This, of course, gets back to the basis of proration and to such questions as to the treatment to be accorded to the man whose crop was partially destroyed by frost, hail, or other damage. It should be clear, for example, that if the appraisal is made at the beginning of a season it may be widely

in error either because of purposeful overestimation, erroneous overestimation, or overestimation because, between the time of the estimation and the time of harvesting, insect pests, disease, or drought have decreased the yield. There is a possibility of including in the certificate plan of proration an element of crop insurance. This would be the case, for example, if the crops were estimated on the basis, let us say, of the past three years' average production.

The control of surpluses by prorating involves a mixture of problems. Perhaps the more important concern the jobs of determining (1) how much to market at any one time, (2) how to appraise specific fields, and (3) how to allocate shipping rights. Space does not permit their discussion in this paper. An error in the first may be serious even if the divergent points of view were not involved. Errors or bungling administration of the others may lead to failure of otherwise good plans by setting up too much irritation of liberty-loving human beings. The problem is far from simple. In addition to the above points it needs even more careful consideration from the point of view of farm practices resulting from the adoption of alternative plans, no plans, or uncertainty as to what plans are likely to be used.

The basic philosophy of the act also needs further examination and explanation. There is validity in the criticism as applied to the act that "we cannot get more by producing less" if done by every one. But how far is this true if the plans are used only to correct errors of judgment or the vicissitudes of weather, insect pests, or disease? Again, how would an enlightened and public-spirited Prorate Commission fit into a "planned economy" for a state or a region? These are among the questions worthy of further consideration.

THE COMPETITIVE POSITION OF THE CHICAGO MARKET IN THE REGION OF GRAIN SUPPLY

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With a commodity such as grain, where transportation cost is a major part of distribution expense, it may reasonably be expected that the ability of a central market to draw supplies from an area in competition with other markets, will depend upon its relative advantage in transportation cost from points within the area, as well as upon the differences in prices which prevail in the competing markets. In fact these price differences between markets, over a period of time, bear a rather close relation to the costs of transportation from one market to the other. The attempt is here made to check the performance of the Chicago market in competition with other markets for different grains against a potential or theoretically possible performance. The method of measurement was as follows.

Differences in monthly average prices between Chicago and other competing markets for the same grade and variety of grain were noted for the period 1924-25 to 1931-32. An average difference in price was determined for the period, and by noting the months during which the price difference was above and below this average, a maximum and minimum seasonal variation in the price difference was discernible. Obviously, the market of higher price had the advantage in attracting grain from the disputed territory in competition with the low-price market. The problem was to translate this price advantage into a geographical area which would belong to the high price market in the sense that shippers within this area could realize a higher net return by shipping to that market than to its competitor.

But the price difference is only one of the major factors which determine the allocation of territory to a competing market. To take account of differences in transportation cost from different parts of the area to the two markets, points were located with the aid of railroad tariffs, where the difference in freight cost per hundred pounds in favor of the market of lower price from these points just equalled the difference in price in favor of the market of higher price. A succession of such points having been located, a line was drawn joining them. Along this line the two competing markets were said to be in equilibrium, in that shipments from points on this line to either market gave the same net return to shippers.

Stated in another way, the price advantage of the market of higher price was converted into distance in the direction of or beyond the competing market by applying the price difference as a freight rate through the medium of the railroad freight tariff. Thus points were located farther away from the market of higher price in the direction of the market of lower price. The supply area of the high price market was expanded and the area of the competing market correspondingly contracted.

Having determined a theoretical division of territory, it remained to check the actual performance of the Chicago market against this potential situation. This was done by superimposing the theoretical area of supply upon the area from which receipts of a particular grain were drawn. The degree of correspondence was noted and explanations offered to account for a failure of the boundaries of the two areas to coincide.

When the above method of analysis is applied to wheat in order to determine the potential supply area of the Chicago market for that commodity, difficulties begin to appear. The state of Illinois supplies the larger part of wheat receipts at Chicago, the St. Louis market competing with Chicago for a share of the crop. The wheat which comes to Chicago from the northern half of the state is primarily the hard winter variety, with a little spring wheat from the northeastern counties. The cash wheat market at Chicago is based typically on hard winter. In the southern half of the state from which St. Louis draws most of its supply, soft red winter wheat is the prevailing variety and little hard wheat is grown. No price quotations for hard winter wheat were available in the St. Louis market so that the price differences between the markets were worked out on the basis of red winter wheat. St. Louis being the principal market for this type of wheat was able to out-bid Chicago and the average difference in price over the period was 4 cents a 100 pounds. In the early season months, and during January and April, the spread in favor of St. Louis widened to an average of 7 cents. In the late season months, including December, the spread narrowed to an average of one cent a hundred pounds.

Illinois is included in the so-called Illinois Proportional rate territory with a system of proportional rates from points within this territory to the principal markets. Grain is bought in this territory on the basis of proportional rates. This system of rates is based upon the theory of equalizing competition in the territory on grain moving through the different markets to Atlantic coast ports, or to the Gulf ports for export or for domestic consump-

tion. The effect of thees rates is to place Chicago and St. Louis on a rate equality in the principal grain producing section of the state when an 11½ cent proportional rate is charged to either market. The northern limit of the 11½ cent rate zone for St. Louis is the southern boundary of that section of the state within which Chicago has a clear advantage over all other markets in drawing wheat. Rates to the north and west in Illinois increase to St. Louis, while the rates directly west of the 11½ cent zone are equal to or more favorable than those to Chicago. To the north and east, St. Louis is at a disadvantage in comparison with points to the south.

Generally the proportional rates are lower than the local rates into the markets, but from some points in the territory the local rates are lower.[1] In converting the price advantage of the St. Louis market on wheat into freight rate, the lower of the two rates from a given point was used. The effect of a maximum price difference of 7 cents a hundred pounds when converted into freight is shown in Figure 1. The line of equal competition extends into Cook County in the northeastern corner of the state. With a 7 cent advantage in price, St. Louis can draw red winter wheat from the immediate vicinity of Chicago.

On the basis of the average difference in price of 4 cents, the lines of potential competition appear in the north-west corner of the state and along the southwestern boundary line. When the St. Louis price advantage is at a minimum of one cent, Chicago is able theoretically to advance to the limits indicated in Figure 1. From points on these lines rates to St. Louis were one cent a hundred more than to Chicago. The territory to the south is so largely blanketed with a rate common to both markets that it was difficult to find any points at which competition in terms of price differences could be equalized by differences in rates.

Theoretically, the territory north and east of the equilibrium points is reserved to Chicago when competing with St. Louis for red winter wheat. Territory south and west of the lines of indifference is reserved to St. Louis. From a practical marketing standpoint these lines of division have little significance because little or no red winter wheat is raised in the northern part of the state. Chicago's ability to compete in other parts of the state except the southern section is based on the price for hard winter

[1] Reshipment of grain to the east via lake at lower than all rail rates is a competitive advantage which Chicago enjoys over St. Louis. It should be noted, however, that higher local rates apply from point of origin into the market on grain originating on the Monon, New York Central, Pennsylvania, Chesapeake and Ohio, and Erie railroads unless these grains move out of Chicago by rail. This rule has an effect on the willingness of Chicago buyers to draw from stations on these roads. It has had the further effect of creating a very considerable movement of grain by truck from the affected territory into Chicago during 1933 and 1934.

wheat. A comparison of the dot map showing the county distribution of receipts of wheat at Chicago in 1924-25 with the location of winter wheat acreage for 1924 shows that the division of terri-

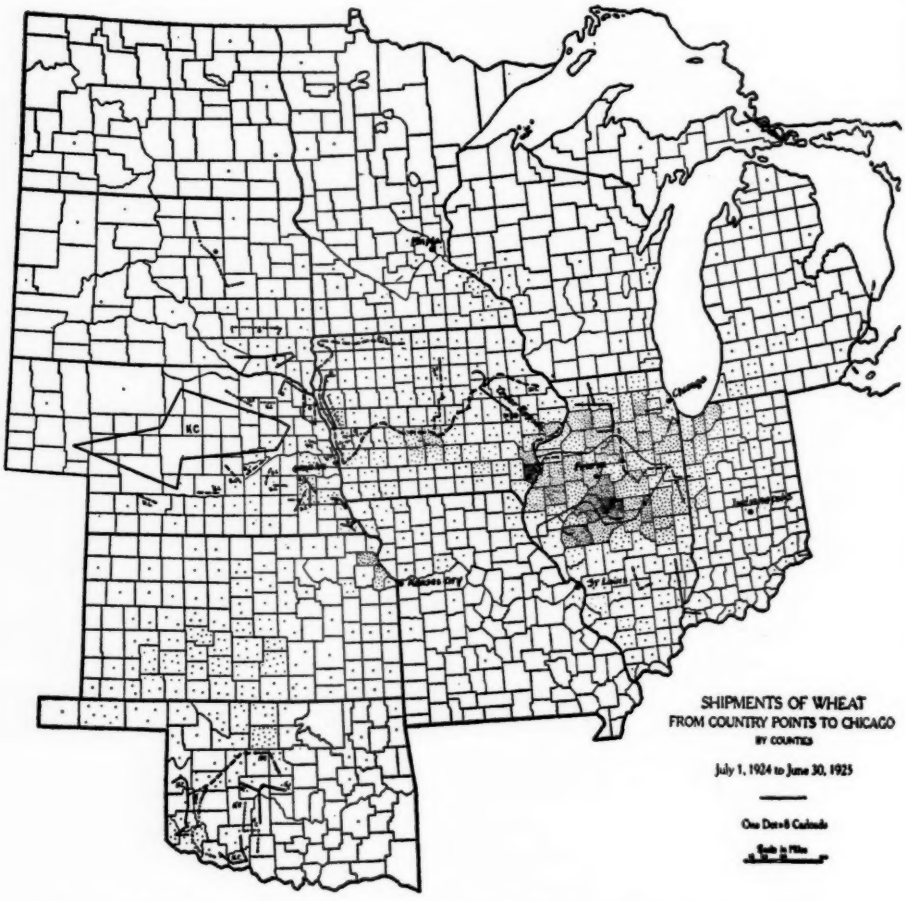

FIGURE 1.—The equilibrium lines are lettered to refer to the markets with which Chicago is in competition. All lines in Illinois, except the line inclosing the Peoria trade area, refer to St. Louis; elsewhere St.L. = St. Louis, O = Omaha, K.C. = Kansas City. The solid black line shows the division of territory when the average price difference between the markets prevailed, the dotted line ..... when the general price advantage of Chicago was at a minimum, and the dashed line ---------- when the seasonal price advantage of Chicago was at a maximum.

tory is controlled by the type of wheat produced. Hard winter wheat predominates in the central, western, and northern sections, red winter in the southern. It is from the hard winter wheat coun-

ties that Chicago draws nearly all of its receipts.[2] For the red winter wheat brought in from the southern part of the state Chicago buyers paid a premium to overcome the price advantage of St. Louis.

The supply of red winter wheat affects the demand for hard winter at St. Louis when the size of the red winter crop is small. Under such conditions the softer grades of hard winter from central Illinois are substituted for red winter, and St. Louis enters into keener competition with Chicago in the central and western sections in Illinois. During 1929-30 when there was a short crop of red winter in Illinois, differences up to 12½ cents a hundred were paid at St. Louis over the Chicago price. The total wheat crop of Illinois in that year was twice as large as in the previous year, but the increase in receipts at Chicago was not proportionate to the increase in production.

Although Chicago is theoretically excluded from the wheat raising counties of western and south-central Iowa when competing with St. Louis, on the basis of an average price difference, the division of territory is again based upon the price of red winter wheat. Very little, if any, of this wheat is produced in Iowa, practically all of the Iowa production being hard winter. The evidence of wheat receipts at Chicago in 1924-25 and 1925-26, and again in August 1930, shows that these receipts are drawn from the important wheat producing counties in Iowa.[3] These counties are generally outside the limits of potential competition. When the price advantage of St. Louis was at a minimum, Chicago was able to reach into the wheat raising counties of Iowa, including counties along the Mississippi River, while St. Louis was excluded from the greater part of the state.

Competition with Omaha for wheat: Competition with Omaha is entirely on a hard winter wheat basis since this is the dominant commercial variety in Iowa and Nebraska, from which states both markets draw receipts. Some winter wheat is grown in South Dakota, but spring wheat is the prevailing variety. The average price difference in favor of Chicago on No. 2 hard winter wheat for the period considered was 11½ cents per 100 pounds. This difference was at a minimum during October, November, January, and June with an average for these months of 10 cents. A

[2] For an average of the three years 1923-1926, the percentage of total shipments of wheat from country elevators to Chicago and St. Louis from the different sections of the state was reported as follows: Northern, Chicago 95.7, St. Louis 2.6; Central, Chicago 70.3, St. Louis 19.8; Western, Chicago 49.9, St. Louis 34.6; Southern, Chicago 21.6, St. Louis 42.3. "Market Destinations of Illinois Grain," C. L. Stewart, L. F. Norton, and L. F. Rickey. University of Illinois Experiment Station, Bulletin 315, 1928.

[3] Des Moines, Louisa, Madison, Muscatine, Polk, Scott, Wapello, and Warren.

maximum difference prevailed in the remaining months with an average of 13½ cents in favor of Chicago. When points were located in Iowa with rates to Chicago 10, 11½, and 13½ cents greater than the rate to Omaha, the lines shown in Figure 1 resulted. That Chicago was able to draw receipts from the counties up to the points through which these lines pass is indicated in the same figure. The influence of the Omaha market is confined to the extreme western edge of the state.

Since the general flow of grain is from west to east, the rates are made to favor the eastern against the western market from points in the area lying between them. The potential supply area of Chicago, when competing with Omaha for grain in Iowa, is affected by this condition.

The important wheat producing section of Nebraska is in the southeastern part of the state. Even when a maximum difference in price is allowed in favor of Chicago, that market, when competing against Omaha, is excluded from all parts of Nebraska except the northeast corner where very little wheat is produced, and the extreme south-east corner. From Lancaster and Saunders counties, southwest of Omaha, sizeable shipments were made to Chicago in 1924-25, but no receipts appear from these counties in 1925-26 nor in August 1930. Nebraska wheat received at Chicago comes almost entirely through the Omaha market.[4] Transit and proportional rates are available out of that market which make it much cheaper to route the grain through the market than around it.

Chicago was able to compete with Omaha for wheat in South Dakota on the basis of an average and minimum seasonal price difference. This is not an important winter wheat producing state and supplies actually moving to Chicago were light. The Omaha-Chicago situation illustrates important principles of rate and price competition which can be stated as follows: Because increases in rail rates are in inverse proportion with distance, the more distant market has a greater relative advantage in transportation cost over the nearby market. Under competition receipts are drawn at distances which increase from the market of higher price toward the market of lower price, at a rate which is more than proportionate to the increase in price advantage. This principle is illustrated by Chicago-Omaha competition in Iowa.

As competition pushes beyond the market of lower price, and

[4] The price difference in favor of Chicago was unusually high in 1924-25, the price at Chicago in July averaging 23 cents above the Omaha price. This may have had something to do with direct shipments from country points to Chicago during that year.

distance is increasing to both markets, the maximum price difference is necessary to permit the market of higher price to compete in the zone immediately beyond the market of lower price. As distance from markets increases, however, a lower price advantage is needed by the market of higher price to compete with the market of lower price. The decrease in price advantage is less than proportionate to the increase in distance. (See Omaha-Chicago competition in Nebraska and South Dakota in Figure 1.)

Competition with Kansas City for wheat: Chicago enjoyed an average price advantage over Kansas City on No. 2 hard winter during 1924-31 of 11 cents per 100 pounds. This difference increased to a maximum of 13 cents during July, December, February, April, and May. A minimum average difference of 9 cents prevailed in the remaining months. On the basis of the average price difference, Chicago was able to compete with Kansas City in Central Nebraska. (See Fig. 1.) With the price difference in favor of Chicago at a maximum, Chicago was able to include more territory in the southern part of the state. This, however, has no practical significance since Chicago was excluded from this territory by the competition of the Omaha market. Theoretically, Chicago was excluded from competition in Kansas-Oklahoma territory except at points in south-west Oklahoma. From points in Kansas the difference in freight rate in favor of Kansas City is everywhere greater than the maximum price advantage of Chicago.

A considerable volume of shipments of wheat to Chicago is apparent from counties in southwest Kansas and western Oklahoma in 1924-25. (Fig. 1.) These shipments from country points fell off throughout the period from 1924 until 1931 when receipts from Kansas points reached a total of 3414 cars. The increase in wheat flour milling through the south-west is absorbing an increasing proportion of the wheat production in this territory.[5] Transit rates lower than the proportionals are available out of Kansas City to Chicago on wheat originating at points in the south-west and moving into Kansas City for storage. The balance of the transit rate necessary to carry the grain to Chicago is dependent upon the origin point of the shipment. With a low transit balance and an average price difference over Kansas City of 11 cents a hundred pounds to work on, buyers of wheat in Chicago were able to compete at points in the territory having

[5] The number of barrels of flour milled in the Southwest increased from 27,133,401 in 1923-4 to 31,146,693 in 1930-31.
The Decline of Northwestern Flour Milling, University of Minnesota Studies in Economics and Business, Victor G. Pickett and Roland S. Vaile, 1933, p. 71.

the same local rates into Kansas City.[6] Wheat moving out of Kansas City on a transit rate shows the point of origin of shipment in Kansas or Oklahoma rather than Kansas City on its arrival in Chicago. It thus qualifies as a shipment from a country point rather than from another terminal.

Chicago grain merchants also pay premiums for high protein wheat in the south-west which they can sell at a profit to local and eastern mills after freight charges are paid. Such wheat sells at a price much above the market when a supply shortage exists. To bring such wheat to Chicago costs no more in the freight than to bring low grade wheat.

The concentration of shipments from Atchison and Leavenworth counties in 1924-25 (see Fig. 1), is accounted for by movements out of storage elevators at Atchison and Leavenworth rather than by original shipments from country points.

The Competition of Chicago with Other Markets for Corn

The competition for corn is limited to Indiana, Illinois, Iowa, and South Dakota. The measurement of the effect of competition in allocating territory to the different markets was confined to these states. In Illinois the chief competitor of Chicago is St. Louis. The distribution of corn production in the state tends to favor Chicago, the region of heavy production of cash corn being in the north-central part of the state, east of the Illinois River. West of the river much of the corn is fed to cattle and especially to hogs. The area from which Chicago drew receipts in 1925-26 (Fig. 2) coincides generally with the cash corn section.

St. Louis is an important market for concentrating corn from Illinois and Iowa for shipment into the cotton states of the south for feed. The corn which moves into Chicago is either processed in the market, ground for feed, or shipped to the eastern dairy states, or to the ports for export.

When an average monthly price difference between the markets on No. 3 yellow corn was calculated for the 1924-31 period it was found that the result was 0, the markets were in balance so far as prices were concerned. The maximum seasonal advantage of Chicago averaged one cent over St. Louis during September, October, January, February, and March. Chicago averaged one

[6] It is the practice of Chicago buyers to sell against a bulge in the future price at that market with the object of delivering on the contract. These bulges give the buyer an advantage in bidding for grain at country points which would otherwise not be accessible. Under ordinary conditions a price difference of 10½ cents a bushel over Kansas City is necessary to bring wheat out of that market to Chicago. This is equivalent to a proportional rate of 17½ cents a 100. On wheat originating at certain points in the southwest and moving out of storage at Kansas City, transit rates as low as 6½ to 9½ cents a hundred are available.

cent per 100 pounds under St. Louis in May and June. There was no difference in price in the remaining months.

If the two markets are in balance in terms of the average price difference which was 0, then it follows that the respective terri-

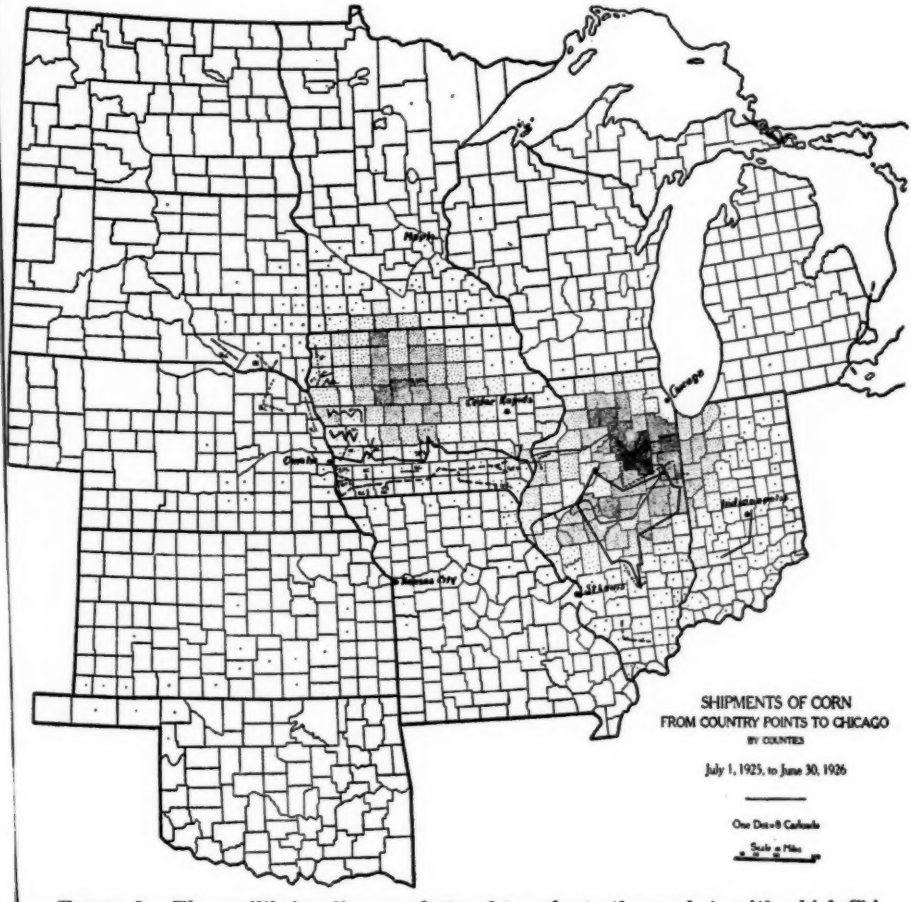

FIGURE 2.—The equilibrium lines are lettered to refer to the markets with which Chicago is in competition. In Illinois and Indiana except for the thin, solid line inclosing the Peoria trade area, all lines refer to St. Louis. The territory within which Chicago and St. Louis are equalized on the basis of an average price difference is inclosed within the solid black line in Illinois. Elsewhere letter symbols and lines have the same significance as in Figure 1.

tories which may be assigned to the markets on the basis of potential competition will be included within lines which describe areas from which freight rates per 100 pounds are equal to both markets. The effect of such a line is indicated in Figure 2 in terms

of an 11½ cent rate. From points within this line returns to shippers are the same when shipping over a period of time, regardless of to which market the shipment is made. In all directions except toward the north, this line also describes the maximum limits of Chicago competition against St. Louis.

Note that the 11½ cent rate line comes well into the southern part of the state but is returned at a sharp angle to the line of the Illinois River as it moves north; the river is crossed just north of Peoria. As it moves east, this line of average price difference cuts St. Louis off from the whole northern part of the state. The line cuts back to the south-west in such a way as to leave a large area in the southeastern part of the state in which St. Louis and other markets have an advantage over Chicago. The heavy producing territory in the central and eastern parts of the state is common to both the Chicago and St. Louis markets.

While the lines of equal freight rates are generally representative of the rate structure in the territory as a whole, it must not be supposed that rates from all points within any one of these boundary lines are homogenous. Within practically every county both local and proportional rates are available, with the local rate higher than the proportional from some points and lower from others. In general, however, the rate indicated in the zone described is generally available. The 11½ cent rate to St. Louis applies only from points on railroads having direct St. Louis connection.[7]

With the price at St. Louis one cent a hundred above the price at Chicago, the latter market is theoretically restricted to the territory within the dotted line shown in Figure 2. In the same figure is shown the effect of Chicago's maximum advantage in price over St. Louis of one cent a hundred.

It remains to consider how the markets fared in terms of actual receipts from different parts of the state. Unfortunately no receipts data by point of origin are available for the St. Louis market. A check is provided, however, in the data of elevator shipments to various markets for the years 1923-24 to 1925-26 reported in the University of Illinois study, "Market Destinations of Illinois Grain" before referred to.

The state was divided into North, West, Central and Southern divisions. The dividing line between the northern and central sections coincides with the 11½ cent rate line of the St. Louis market from its junction with the Illinois River to a point near

[7] See note 1 for limitation on the use of the proportional rate to Chicago on grain originating on certain roads.

the eastern boundary of the state. Thus one expects to find that the bulk of corn shipments from the northern section finds a market in Chicago. This is confirmed by the dot map for 1925-26 and by the data of the University of Illinois study which show that for the three years covered by the study an average of 69.8 per cent of the total elevator shipments in the northern part of the state went to Chicago, while but 1.1 per cent went to St. Louis. Both Decatur and Peoria, at which important corn processing industries are located, were more important competitors in this area than St. Louis.

The dot map shows lighter receipts at Chicago from the Western section of the state in 1925-26 than from the northern. Not only does St. Louis have some rate advantage over Chicago in this area, but a considerable part of this section has proportional rates to Peoria which are two cents under the rate to Chicago, thus placing Peoria on an equality with Chicago in shipping to the east. (See Fig. 2 for an outline of this area.) The evidence of elevator shipments confirms this advantage since 70.2 per cent of elevator shipments out of the territory west of the Illinois River went to Peoria, while but 20.5 went to Chicago. In 1925-26, the receipts of corn at Chicago from these western counties were approximately 20-30 per cent of the corn sold.

In the highly competitive central section, Chicago was accredited with 23.0 per cent of the elevator shipments during 1923-26, the St. Louis market with 11 per cent. Decatur appears as the next most important market for corn in this area with 22.0 per cent of total shipments. Peoria and Indianapolis with 16.0 and 14.0 per cent respectively are more powerful competitors than St. Louis. An earlier and more complete study of elevator shipments of corn from this area was made for the years 1912-17 by the Federal Trade Commission and is reported in the University of Illinois study. The corresponding percentages for this earlier period were: Chicago 38, Peoria 19, Indianapolis 12, St. Louis 10, Decatur 4.[8] It is apparent that in this section where Chicago and St. Louis were in equilibrium, Chicago had the advantage in receipts.

In the southern part of the state it is to be expected that St. Louis will have the advantage in receipts. The data of elevator shipments show that 32.6 per cent of the total of cars shipped went to St. Louis. Chicago, however, was credited with 16.8 per cent which is a much higher proportion than St. Louis was able

[8] An analysis of the corn receipts at Chicago for the 1925 crop indicated that receipts from the central section of the state were from 40 to 60 per cent of the corn shipped out of these counties.

to draw from the northern part of the state. The explanation is to be found in the rate structure which allows Chicago to penetrate well into the southern territory on an 11½ cent rate, and with the exception of counties near St. Louis, to cover the entire southern part of the state on a 12½ cent rate.

On the east side of this southern part of the state the rates favor Indianapolis. During 1923-26 Indianapolis is credited with 13.8 per cent of the elevator shipments. The data of corn receipts of the 1925 crop at Chicago show that from these eastern counties between 20 and 30 per cent of the corn sold came to Chicago. From the crop reporting districts making up the western group of southern counties from 80 to 90 per cent of sales of the 1925 crop came to Chicago. From the group of counties in the extreme south only a negligible part of the 1925 crop reached Chicago. From this part of the state many shipments went to points in the southern state. Decatur was about on a par with Chicago in drawing corn from this southern section, this market taking 16.1 per cent of elevator shipments. Rates in the counties directly east of Decatur are unfavorable to both St. Louis and Chicago.

So far as competition with St. Louis was concerned, it is apparent that under average conditions, when the prices in both markets are the same, Chicago had a clear advantage over St. Louis in the northern part of the state. The two markets were nearly on an equality in rates in the western part of the state; nevertheless Chicago had the stronger attractive power under average conditions. Again in the important central section, with prices the same in both markets, Chicago had an advantage in drawing receipts. In the southern section the situation was much the same, with St. Louis favored by rates but Chicago drawing receipts out of proportion to what might be expected.

Unlike the competition for wheat, the competition for corn is complicated by the strong pull of interior processing markets. No price information was available for these markets, but their ability to compete with the larger markets is amply testified to in the distribution of the commercial supply.

The failure of Iowa corn and oats to come to Chicago in the usual quantities in 1931-32 and 1932-33 is a symptom of the presence of a number of forces which have been operating to decrease the supply of these grains at Chicago for a number of years, not only from Iowa but from other states as well. Grain buyers at Chicago since 1915 have been operating under the "Call Rule"[9]

[9] "Bids After Session. After the session, members are prohibited from bidding the country for grain to arrive at prices in excess of the closing prices of the day less the minimum charges above

of the Board of Trade. This rule does not operate at other markets and is not binding upon members of the Chicago Board of Trade who buy at points outside of Chicago.

The call rule was designed to protect the small grain commission firm against the monopolistic tendencies of the large elevator company which could bid above the market to the country elevator and thus restrict the volume of grain handled on the open market by the cash grain commission dealers. With other markets operating on an unrestricted basis, it seems inevitable that the long-run effect should be to curtail receipts at Chicago.

The building up of processing industries at outlying points is a second major factor operating to decentralize the receipts of corn and oats. Notable examples are the Quaker Oats Company's cereal mill at Cedar Rapids, the Corn Products Refining Industry at Decatur and the Distilling Industry of Peoria. These industries have operated to intercept the grain flow to Chicago. With their enjoyment of storage service and transit privileges these markets have become vigorous competitors for corn and oats.

Members of the Chicago Board of Trade, like the Quaker Oats Company, are not bound by the call rule when buying grain from the country at these outlying markets. They are therefore able to bid enough over Chicago to divert an increasing share in their direction. Markets close to the producing territory have had the additional advantage since 1929 of offering the farmer relief from a part of the burden of high freight rates. As grain prices have declined the relative burden of these rates into the more distant markets has bcome excessive. Thus the nearby market within a short rail haul or trucking distance profits at the expense of the more distant outlet.

A significant consequence of the growth of cereal milling at outlying points in the producing area has been the reshipment of unmillable oats to Chicago by the cereal mills. A recent ruling of the Chicago Board of Trade provides that no grain bought by members outside the call rule shall be shipped to Chicago. This further operates to restrict the receipts of oats, especially from Iowa.

Competition with St. Louis in Iowa: When prices for corn were equal in Chicago and St. Louis, the advantage of Chicago in rail rates was such as to confine St. Louis competition to the three tiers of counties extending across the southern part of the state.

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specified, except as follows: a member having a bona fide bid from a buyer in Chicago in excess of any closing price may bid the country the price named in such bids less the regular charges. Members thus bidding in excess of any closing price must file with the Secretary before 8:00 A.M. of the following day, a statement showing the prices at which they bid the country and the facts justifying such bids under this Rule."—Rules of the Board of Trade of the City of Chicago, Annual Report, 1933.

(See Fig. 2.) A price advantage of one cent a hundred pounds at Chicago resulted in pushing the line of potential competition still further toward the south. Only at isolated points in the north-central and northwestern parts of the state were the two markets equalized when the price advantage of Chicago was at a minimum.

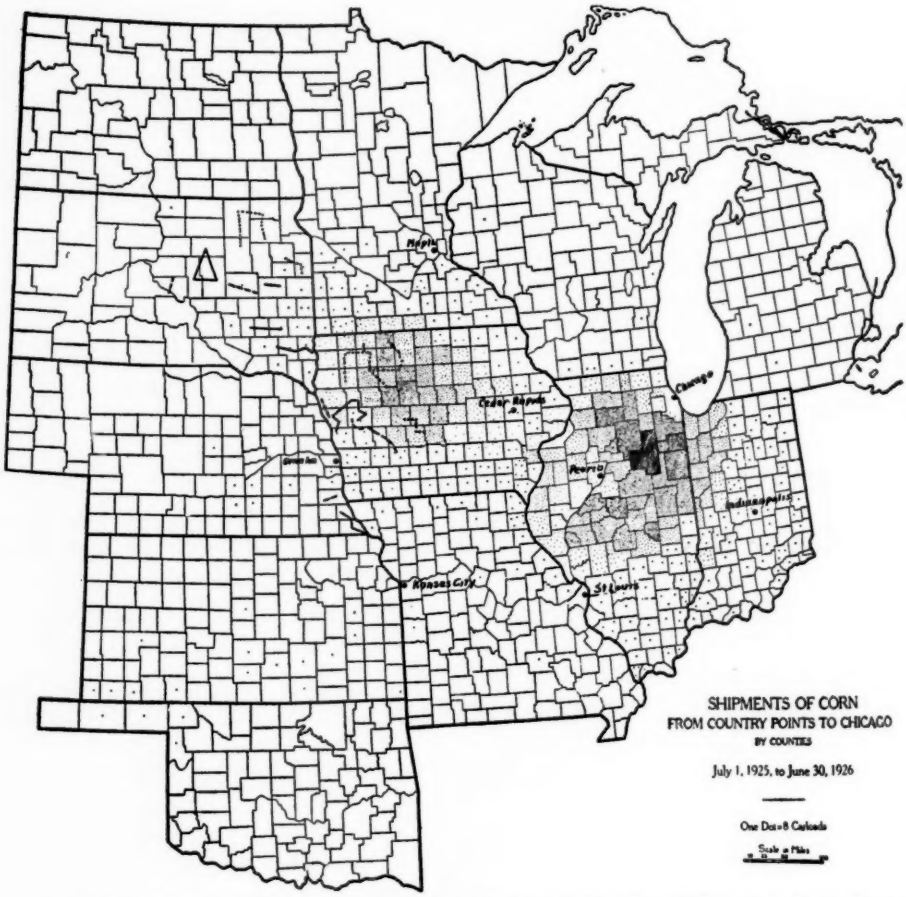

FIGURE 3.—The equilibrium lines refer only to Omaha, the different-pattern lines having the same significance as in Figure 1.

The pattern of corn receipts at Chicago from Iowa in 1925-26 (see Fig. 2) shows the exclusion of Chicago from these southern counties. This part of the state is in fact a hay and pasture section rather than one of heavy corn production. During 1925-26 only 448 cars of the corn sold in these counties came to Chicago. During the same year, a year of heavy crop production, 13 per

cent of the commercial corn shipments of the whole state of Iowa went to points in Missouri of which St. Louis was one. (See Table I.)

Competition with Omaha for Corn in Iowa and South Dakota. Over the period 1923-31, the price of No. 3 yellow corn averaged 9 cents a hundred pounds over Omaha in the Chicago market. This advantage was reduced to 5½ cents a hundred during July, October, November and May. In all other months Chicago's price advantage was at the maximum of 10½ cents. With this much advantage in price and a rate which increases very gradually from east to west, it is not surprising that the points at which the two markets are equalized carry well toward the western boundary of the state. (See Figure 3.)

Even with the price difference at a minimum, Chicago is able to compete on the western edge of the commercial corn shipping territory. On an average price difference the line of potential competition moves nearer to Omaha, and with the maximum difference of 10½ cents, the lines come close in to the Sioux City and Omaha markets. This ability of Chicago to draw heavy receipts from the western part of the state is verified by the dot map showing the origin of receipts for the 1925 crop.

The lines of potential competition seem to be drawn in such a way as to exclude Omaha from the section of the state in which commercial corn shipments are most important. Only a narrow strip along the western edge of the state, in which grain grown for the cash market is a major enterprise, is accessible. To the east of this strip, and until the principal cash grain area is reached, the type of farming requires the feeding of most of the corn raised on the farm. Omaha's share of the cash corn movement from Iowa was limited to 1.0 per cent of total car-lot shipments in 1923-24 with no evidence of further receipts until 1930-31, when less than one per cent of the total appeared in Omaha receipts.

The table on page 652 shows in percentages the relative shares of the Iowa commercial corn shipments which arrived in Council Bluffs and Chicago respectively over the period 1924-25 to 1932-33.

Before leaving this account of the Omaha-Chicago competition in Iowa it is worth while referring again to Figure 3 where the drawing power of Chicago by sections of the state for the 1925 corn crop is shown. The effect of Sioux City and Omaha on the ability of Chicago to compete in the western part of the state is clearly apparent. The absence of effective competition in the

northcentral and extreme eastern counties is no less clearly shown.

Except in the southern, and a few southeastern counties of South Dakota, Chicago is able to compete with Omaha for corn shipments in that state. For the seven years preceding 1931, an average of 6.5 per cent of South Dakota's commercial corn crop was counted in Chicago receipts. From 1931 to 1933 the receipts were nominal. Except in the southeastern corner of the state, Chicago was excluded from direct competition in Nebraska when competing with Omaha. The volume of corn received at Chicago from country loading points was never more than one

TABLE 1. PERCENTAGE OF IOWA COMMERCIAL CORN SHIPMENTS MOVING TO DIFFERENT MARKETS, 1924–1933[a]

	1924–5	1925–6	1926–7	1927–8	1928–9	1929–30	1930–1	1931–2	1932–3
Chicago[b]	52.41	19.39	9.0	22.58	21.33	28.17	28.82	5.0	8.8
Chicago	36.0	23.5	11.0	23.0	28.0	24.5	17.5	—	—
Milwaukee	8.0	6.0	9.0	8.0	7.5	7.0	3.6		
Omaha	—	—	—	—	—	—	0.4		
Council Bluffs	7.0	13.0	13.0	15.0	6.0	6.0	10.0	6.0	
Cedar Rapids	14.5	17.0	17.0	20.0	20.0	20.0	23.0	28.2	
Sioux City	1.0	2.0	3.0	2.0	3.0	2.0	1.0	2.8	
Minneapolis	1.0	2.5	5.0	1.0	—	0.5	3.6		
Missouri[c]	2.0	13.0	9.0	5.5	9.0	11.0	8.8		

[a] Data from R. C. Bentley, Iowa State College of Agriculture.
[b] Based on U. S. Department of Agriculture estimates of corn sold out of the state.—Differences in the percentages for Chicago are attributable to the fact that Bentley's estimates of total shipments are based on reported car loadings by railroads, while the authors have used the estimates of the United States Department of Agriculture published in mimeographed form under the title, "Farm Value, Gross Income, and Cash Income from Farm Production," March 1930 and subsequent dates. Bentley took the original billing as evidence of market destination of the shipment while the authors base their estimates of receipts at Chicago on the receipts record of the Central Weighing and Inspection Bureau at Chicago.
[c] Kansas City, St. Louis and St. Joseph.

per cent of the total shipments from that state during the nine-year period.

Competition with Kansas City for Corn: The minimum price advantage of 4 cents a hundred pounds which Chicago had over Kansas City was not enough to allow Chicago to compete with Kansas City for No. 3 yellow corn anywhere in Nebraska except in the northeast corner. In southern South Dakota the maximum difference of 7½ cents was required. A glance at the dot map (Figure 2) shows how completely Chicago was excluded from this area. In western and southwestern Iowa, on the other hand, Kansas City was able to compete with Chicago for corn on the basis of the maximum, minimum, and average price differentials. Bentley's data of Iowa corn movement show no shipments to Kansas points.

The Competition of Chicago with Other Markets for Oats

Competition with St. Louis: The oats crop in Illinois is grown farther north and east than the corn crop. This would seem to

favor Chicago against St. Louis, and the bulk of receipts at Chicago do in fact come from counties closer to the market than those which supply the bulk of corn receipts. However, over the period which is being considered, St. Louis paid an average of 3½ cents a hundred pounds more for oats than Chicago. During November, December, January, February, April, and May this advantage in price was extended to 4½ cents. The average of prices for July, August, September, and October was at a minimum of 2½ cents over Chicago. Seasonal marketings of oats from Illinois during the months in which the price advantage of St. Louis was at a maximum averaged 35.6 per cent of the annual supply at Chicago for the nine-year period, 1924-25 to 1932-33, with the crop year beginning in August. In the months when St. Louis' price advantage was at a minimum, 51.5 per cent of the crop was marketed. During March and June when the average price difference prevailed, 2.9 per cent of the annual crop went to market.

The system of rail rates in Illinois is such as to make it difficult for Chicago to overcome the average difference of 3½ cents a hundred, let alone the maximum of 4½ cents. When the average price difference is balanced off against similar differences in rates from points in the area between the markets, the lines of indifference shown in Figure 4 result. There is a general correspondence between the pattern of Chicago receipts of the 1924 crop shown on the dot map and these lines which define the areas of potential competition for each market in Illinois and Indiana. The fact that the line is not continuous across the state of Illinois is evidence that there are no points in this north-central part of the state from which rates on oats are as much as 3½ cents more to St. Louis than they are to Chicago.

By far the larger part of the Chicago oats supply in Illinois comes from within a 9 cent rate zone. With St. Louis using a 12½ or a 13½ cent rate to take advantage of its average price advantage, the two markets would be in equilibrium at points at which the rate to Chicago is 9 to 9½ cents, since the rate to St. Louis from these same points is approximately from 12½ to 13½ cents a hundred pounds. The territory to the south and west of the Chicago 9 cent rate zone, except in the northwest corner of the state, is definitely St. Louis territory when average price differences prevail.

With a maximum price advantage of 4½ cents prevailing at St. Louis, the effect as shown in Figure 4 is to restrict the Chicago potential supply area to very small dimensions in Illinois. With

the price advantage reduced to a minimum of 2½ cents, the market supply territory is enlarged to include the most important oats producing sections of the state.

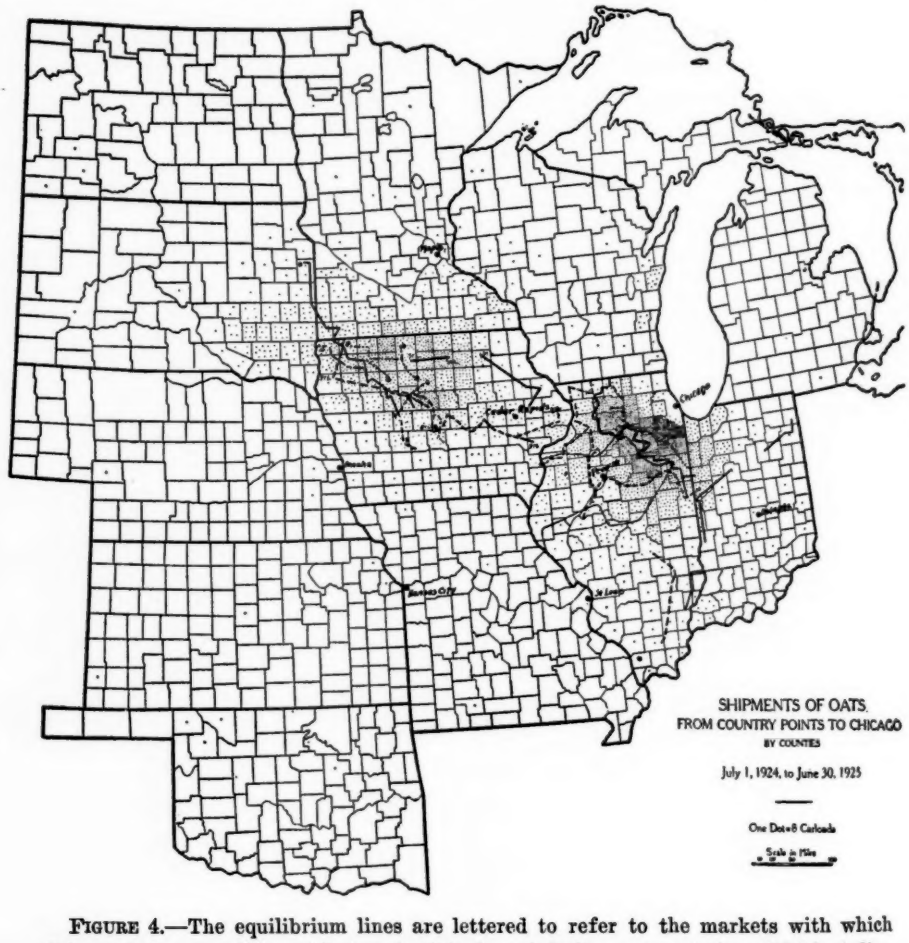

FIGURE 4.—The equilibrium lines are lettered to refer to the markets with which Chicago is in competition. All lines in Illinois and Indiana, except the solid black line inclosing the Peoria trade area, refer to St. Louis. In Iowa St.L. = St. Louis, O. = Omaha. The solid, dotted, and dashed lines indicate the same price-difference relationship as in Figure 1.

This advantage of St. Louis in price is reflected in the actual movement of oats from the disputed territory. Besides the evidence of the dot map, the University of Illinois study[10] of market movement of grain for 1923-26 shows the following percentages

[10] Bulletin No. 315, *op. cit.*

of elevator shipments of oats going to different markets from the different parts of the state.

Market	*Northern*	*Central*	*Southern*	*Western*
Chicago	57.8	12.2	4.7	25.7
St. Louis	5.6	22.6	39.2	29.1
Lockport	16.3	.3	.2	–
Peoria	4.1	4.2	.1	36.6
Cairo	2.7	12.6	17.7	3.9
Memphis	1.2	12.3	7.1	1.3

The pulling power of the southern markets on the central and southern parts of the state is evident. Chicago's ability to compete in the central and western parts of the state against the price advanage of St. Louis is noteworthy. St. Louis competition in the north is matched by Chicago competition in the south. The influence of St. Louis and Peoria competition in the central and western parts of the state is evident.

Competition with St. Louis in Iowa: By reason of its price advantage, St. Louis is an effective competitor of Chicago for oats in Iowa. Commercial shipments of oats in Iowa are more generally distributed than shipments of corn, but the area of surplus production centers in the northern half of the state. On the basis of the average price difference of 3½ cents a hundred pounds, St. Louis is able to reach well into the surplus area against Chicago. The evidence of this ability to compete is in Bentley's data of Iowa grain distribution before referred to:

TABLE 2. DISTRIBUTION OF IOWA COMMERCAL OATS SHIPMENTS TO DIFFERENT MARKETS, IN PERCENTAGES OF TOTAL STATE SHIPMENTS.

Market	1924–5	1925–6	1926–7	1927–8	1928–9	1929–0	1930–1	1931–2	1932–3
Chicago	21.8	15.1	7.8	15.1	12.9	11.8	8.9	b	b
Chicago[a]	18.1	12.6	18.1	24.7	11.6	14.1	9.2	1.4	2.2
Kansas City	5.5	8.9	1.2	1.2	3.5	4.1	3.2	b	b
St. Louis	8.4	6.0	2.1	2.6	5.4	4.6	5.4	b	b
Minneapolis	—	.1	2.8	1.0	.1	1.4	—	b	b
Omaha	.3	.2	.7	.4	—	—	—	b	b
Council Bluffs	10.1	9.5	9.8	5.1	7.6	5.4	4.5	b	b
Cedar Rapids	24.1	32.8	40.2	43.1	41.9	41.2	45.3	b	b
Milwaukee	10.3	6.2	10.4	6.4	6.3	8.3	5.3		

[a] Based on U.S.D.A. estimates of oats sold out of state.
[b] Data not available.

This ability of St. Louis to compete for the Iowa oats supply is much reduced when the price difference drops to 2½ cents a hundred. Chicago's power to compete is then at a maximum. There are no points in Iowa where the rates to St. Louis are 4½ cents greater per hundred than to Chicago. This would indicate that St. Louis could draw from the whole state when the price difference is at a maximum.

That St. Louis makes such a poor showing in terms of actual receipts is due largely to the lack of direct rail routes from the principal oats producing section to the market. Handling to interconnecting carriers results in accumulating switching charges and delay in transit.

Competition with Omaha: Chicago's price advantage over Omaha averaged 5 cents a hundred pounds for No. 3 white oats over the period 1924-31. This advantage improved to 6½ cents during July, October, November, December, and June. In these five months an average of 28.7 per cent of annual marketings occurred in Iowa. Chicago's price advantage was reduced to a minimum of 3½ cents in September, January, February, March, April, and May. During these months 45.7 per cent of the average annual crop was marketed. In the single month of August when the average differences of 5 cents prevailed, 25.6 per cent of the crop came to market.

On the basis of the average price difference, Chicago is able to compete with Omaha on the western edge of the surplus oats producing section of Iowa. The line of demarcation moves north and west out of Iowa along the Minnesota-South Dakota boundary line. Chicago, Omaha, and Kansas City come together in competition in south-west Minnesota and along the Minnesota-South Dakota boundary in terms of average price differences. Reference to Table 2, as well as to the dot map of the 1924 crop and Figure 4, is sufficient indication of the relative pull of Chicago and Omaha-Council Bluffs on the Iowa oats supply. In terms of actual receipts, Chicago was able to go well beyond the line of average price difference when competing with Omaha and Council Bluffs. When Chicago's price advantage is at a minimum, the boundary of potential competition is shifted to the north and east. The maximum price difference adds little to the potential supply area already included under an average price advantage.

Competition with Kansas City in Iowa: Kansas City has a price advantage over Chicago on oats. The average difference was 2 cents a hundred. The maximum price advantage was 2½ cents a hundred. The months of maximum price difference included September, November, January, March, April, May, and June. The price difference was reduced to an average of 1 cent during July, August, October, December, and February. A somewhat larger share (52.6%) of the Iowa crop went to market in the months when the price difference was at a minimum.

On the basis of the average price difference, Kansas City was admitted into the important commercial oats section of north-

central Iowa in competition with Chicago and Omaha. The line indicating potential competition parallels that of Chicago-Omaha competition in south-west Minnesota and north along the Minnesota-South Dakota line. With the price difference at a minimum, Chicago and Kansas City equalize in northeast South

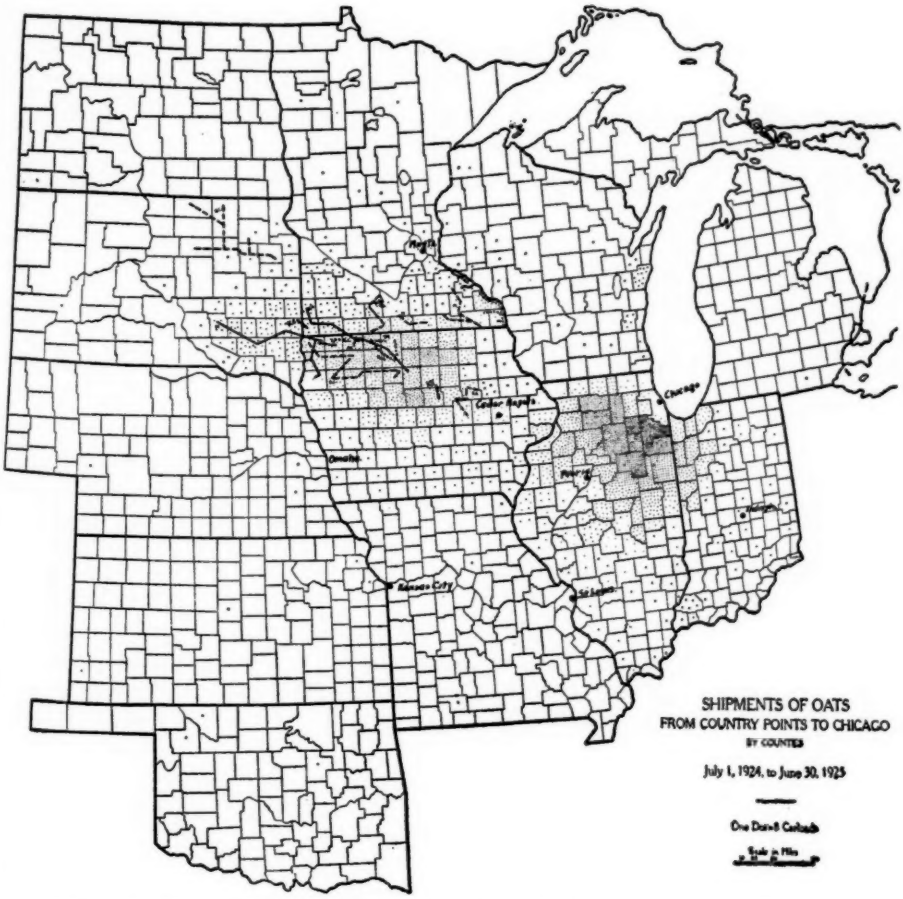

FIGURE 5.—The equilibrium lines are lettered to refer to the markets with which Chicago is in competition: M. = Minneapolis, K.C. = Kansas City. The solid, dotted, and dashed lines indicate the same price-difference relationship as in Figure 1.

Dakota. The evidence of the dot map of the 1924 crop shows, however, that a considerable tonnage of oats reached the Chicago market from south-east South Dakota in that year. The supply moving from country points has, however, been a diminishing quantity over the period from 1924 to 1933. The effectiveness of

Kansas City competition in Iowa is set forth in Table 2. As shown in Figure 5 potential competition of Chicago with Kansas City for oats reached into southern Minnesota and eastern Iowa when the price advantage of Kansas City was at a minimum.

Competition with Minneapolis: Partly because of very heavy oats production in Minnesota, the price of No. 3 white oats in Minneapolis was, on the average, 8 cents a hundred under the price at Chicago. This average difference prevailed in November, December, and June. The price difference increased to an average of 9 cents during October, March, April, and May. A minimum difference of 5½ cents was present in July, August, September, January and February; during these months the bulk of the crop moved to market.

With an average price advantage of 8 cents a hundred, Chicago was able to compete with Minneapolis at Mississippi River points almost into the Minneapolis market. The two markets are equalized in north-west Iowa, the line of potential competition extending west and north into South Dakota. On the basis of both a minimum and average price difference, Minneapolis is theoretically excluded from north-west Iowa.

The pull of the Chicago market on Minnesota is illustrated in the dot map of the 1924 crop (Figure 5); the bulk of the movement was from the southern and south-eastern counties. The maximum price advantage for Chicago was necessary to admit Chicago buyers into this territory.

Receipts of oats at Chicago both from Minnesota country points and from the Minneapolis market have been a diminishing share of the available supply since 1924. From country points receipts averaged less than 3 per cent of the state's commercial crop. Receipts from Minneapolis averaged 4.7 per cent of the market's total oats shipments, from 1924 to 1931, but were negligible after that date. The relative drawing power of Chicago and Minneapolis on the Iowa oats supply is indicated in Table 2.

Summary

A measure of the competitive position of the Chicago market, relative to other markets, was taken on the basis of prevailing price and freight rate differences between Chicago and St. Louis, Omaha, Kansas City, and Minneapolis, on wheat, corn, and oats, over the period 1924-1931. The areas of potential competition thus determined for Chicago were checked against the actual areas of grain supply, as determined for the crop years 1924-1925 and 1925-1926.

Competition in Illinois was measured only with respect to St. Louis. For wheat, the division of territory between the markets is determined more by differences in variety than by differences in price. The hard winter wheat section of the north and west is naturally tributary to Chicago, the hard winter wheat market. The red winter wheat section of the southern part of the state is tributary to S. Louis. Higher prices for red winter wheat at St. Louis make it difficult for Chicago to invade the principal area of red winter wheat production in Illinois. Chicago and St. Louis were on an equality when average price differences for winter wheat prevailed in the 11½ cent rate (per hundred pounds) zone common to both markets in the central part of the the state.

Differences in red winter wheat prices were an unsatisfactory measure of competition between Chicago and St. Louis in Iowa where hard winter wheat is grown. On the basis of the price differences, Chicago was excluded from the southern wheat-raising counties of Iowa, but the county origins of receipts for 1924-25 and 1925-26 showed a considerable volume from these same counties.

Competition with Omaha for hard winter wheat in Iowa was much to the advantage of Chicago. The influence of the Omaha market was confined to the western edge of the state and this was confirmed by the data of actual receipts so far as Chicago was concerned. Competition with Omaha extended into South Dakota and northeast Nebraska.

In competition with Chicago for hard winter wheat, Kansas City was excluded from Iowa but divided Nebraska and South Dakota territory with Chicago. Little significance attaches to any apparent ability of Chicago to compete in Nebraska since Omaha was able effectively to exclude Chicago from all but a small corner of the state. Competition of Chicago with Kansas City in the southwest was confined to the movement of high protein wheat, or re-shipment on low transit balances from storage elevators at strategic points of concentration.

In the competition with St. Louis for corn in Illinois the average price difference was zero. A line describing a zone of equal freight rates common to both markets, therefore, illustrates the territory within which the two markets were in equilibrium. The 11½ cent rate zone is shown in Figure 2. This includes the heavy producing territory in the central and eastern parts of the state. Data of the market destinations of corn in Illinois confirm the division of territory on the basis of price and freight rate dif-

ferences. Decatur and Peoria are effective competitors of both Chicago and St. Louis for Illinois corn.

With prices for corn the same in both markets, St. Louis was confined to the three tiers of counties crossing the southern part of Iowa when competing with Chicago.

Chicago's price advantage of 10½ cents a hundred pounds over Omaha made it possible for Chicago to compete on the western edge of the commercial corn section of Iowa. Competition with Omaha extended into southeast South Dakota but Chicago was excluded from all but the northeast corner of Nebraska. Chicago was also excluded from Nebraska by competition with Kansas City for corn. These two markets were equalized in southwestern Iowa. An analysis of the market destinations of Iowa corn showed Cedar Rapids gaining at the expense of all other markets.

St. Louis paid an average of 3½ cents a hundred pounds more for oats than Chicago. With this advantage in price St. Louis was able to confine Chicago potential territory to a 9½ cent rate zone about that market. In actual drawing power, however, Chicago was able to exceed this limit. (See Figure 4.) Seasonal variation in the St. Louis price advantage operated to vary the size of the area potential to Chicago. The actual drawing power of St. Louis was in the central and southern parts of the state.

In Iowa, St. Louis was able to reach well into the surplus oats section with a 3½ cent price advantage. An analysis of the actual destinations of Iowa oats again shows Cedar Rapids profiting at the expense of all other markets. The presence of the large cereal mill of the Quaker Oats Company and the operation of the Call Rule at Chicago are largely responsible for this development.

With a price advantage of 5 cents a hundred over Omaha, Chicago was able to compete very effectively against that market in Iowa. This competition extends into southeast South Dakota. An advantage in price of 2 cents a hundred over Chicago on oats made that market an effective competitor in north-central Iowa and in Minnesota.

With an advantage of 8 cents a hundred over Minneapolis, Chicago was able to reach into southern and southeastern Minnesota for oats. Receipts of oats from Minnesota country points, however, have been a diminishing quantity since 1924.

Although Chicago is able to penetrate the important surplus grain areas of Illinois and Iowa when differences in prices and freight rates with other markets are alone considered, other competitive forces are operating to neutralize these primary com-

petitive factors. Some of these forces, like the shift in the center of hard winter wheat production, and the change in the character of agriculture in the spring wheat states are general in their nature and point to rather permanent changes. Others, like the call rule and changes in freight rates, truck and water competition, are subject to more or less frequent change. Those whose interests are identified with the preservation of the Chicago grain markt can be depended upon to fight a skillful battle so far as these forces which are subject to change are concerned. What the long-run tendencies of change will bring forth is not so clear and not so subject to control. One may safely assert, however, that Chicago will continue to have an important part in the grain trade of the country for quite some time to come.

RUSSIA'S GRAIN EXPORTS AND THEIR FUTURE[1]

BORIS BRUTZKUS

A SHORTENED TRANSLATION

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The world grain markets since the war have been in a disturbed condition. Of the factors causing this situation, the most important is the USSR. It must not be forgotten that before the war Russia was the most important grain exporting country. After recovering somewhat from the World War and the Revolution, Russia reentered the world market but it was evident that she no longer had at her disposal any considerable grain surpluses. From time to time the USSR appeared upon the world market as a grain exporting country only soon to disappear again. In this connection the impression may be gained that the Soviet Government, when it actually does possess a grain surplus sells it at any price, and therefore exercises a particularly strong depressing influence on grain prices in those particular years.

If, therefore, anything is to be said about the future of the world grain markets the Russian riddle must first of all be solved. Whither is the USSR tending? Does she really have prospects, in the visible future, of assuming the same important place in the world grain markets as before the war? And what manner of economic order is it in which any prices on the world market are always acceptable?

I. The Grain Exports Before the War

From the point of view of agriculture, and especially the culture of grains, Russia may be divided into two primarily different zones. The northern area includes poor, leached soils (Podsols) needing fertilizers to utilize fully the short growing season. This is the area of the forest steppes. The southern area includes black-earth soils (Tschernosem) which are especially well suited to grain culture although likely to suffer from drought at times. This is the area of the real steppes, level, stone free areas, reaching to the Black Sea and the Caucasus, an area well suited to machine agriculture, though an area of low yields.

The early (18th century) industrialization of the northern

[1] This article was submitted originally in German by Professor Brutzkus. The translation, including some condensation of the original was prepared by Dr. Roth.

area, its increasing population (the two major cities, Moscow and Leningrad lie here) and its less satisfactory physical situation for agriculture soon caused it to fall behind in its position of self sufficiency as far as grains were concerned, particularly since its grain was largely rye and the demand for wheat exceeded the demand for rye.

With the expansion of the railways in the sixth decade of the 19th century, the steppe areas developed at a rapid rate becoming soon the granary of northern Russia and in fact of the entire world. This was the more easily possible because of its recent colonization and its limited population. The local grain consumption was low leaving ample surpluses for sale, and especially for export. The steppe areas did not suffer for lack of laborers since these came in large numbers every spring from the neighboring overpopulated forest steppes.

The exports of Russian grain come principally from the western steppe region lying near the Black Sea while the eastern steppes and the central region of black-earth soils served the inner market. Of the exported grain approximately three-fourths was composed of the two main grains of the steppes, wheat and barley, although maize also was grown here (Bessarabia). These three types of grain from the black-earth belt constituted 82 per cent of the grain exports. Oats and rye, coming principally from the region of the forest steppes, made up only a small proportion of the exports of grain.

Russia, before the war, represented the most important grain exporting country of the world. Of 32.3 million tons of grain of the five main types which were handled annually on the world market during the years 1909-1910 to 1913-1914, 10.7 million tons, i.e., approximately one-third, originated in Russia. She furnished over 70 per cent of the barley, almost one-half of the rye and oats, and one-fourth of the wheat. In supplying the world market with maize, her rôle, on the other hand, was unimportant.

The exports of grain formed the most important bond between Russian economy and the world economy. Averaging the last 5 pre-war years (1910 to 1914) this export reached a value of 1422.8 million rubles of which 673 million rubles represented grain, therefore approximately one-half (47.3 per cent). Without a considerable export of grain one could hardly have envisaged a balance in Russian trade before the war.

Russian grain production, however, in contrast to that of the over-seas countries, (Canada, Argentina, and Australia) was not built one-sidedly upon export. Russian agriculture consisted

in very large measure of a peasant organization. The peasant production served principally for self-sufficiency. Of the grain produced within the existing boundaries of the empire scarcely a fourth came upon the market. The balance was consumed on her own farms. Of the merchantable grain something over 20 per cent originated on large estates while approximately 80 per cent came from peasant farms. Among the latter the larger peasant farms which had developed particularly in the steppe region and which evidenced strong capitalistic tendencies, played the leading rôle. The grain exports took only 11.8 per cent of the gross production and approximately 14 per cent of the net production of the old empire.

It is clear that under the given conditions between demand and supply in the Russian grain economy any disturbance, let alone a retardation of its development, under a continuing growth of the population could result in a drying up of the sources of supply which served to feed the grain exports. Such disturbances arose after the outbreak of the war.

II. The Decline of the Grain Enterprise During the War and the Revolution, 1914 to 1922

When at the beginning of 1920, Russia again established contact with other countries, it developed that she no longer had grain exports but actually a food shortage. Russian agriculture in the interim had experienced a severe decline, explained by the Soviet Government as a consequence of the World War and the Revolution, this explanation, however, being only in part correct.

The Russian peasantry and its primitive agriculture withstood the ravages of the war well. The harvest of 1915 was good, the grain areas were reduced but little in 1916 and were maintained at the same figure in 1917. A grain surplus developed. Livestock including horses increased in numbers despite the heavy conscriptions.

The bread shortages which developed in the cities, following the outbreak of the war, were not the result of the condition of agriculture but rather because the Russian economic structure was not equal to the war demands. Because of its appropriation by the military the underdeveloped railway system could hardly serve private business also. The entire southeast possessing but few railway lines, could no longer be considered as a source of supply for the inner market which was then thrown back upon the resources of the small farms of the northern black-earth

belt. The devaluation of the Russian money, the war payments for soldiers and horses and the prohibition of distilled spirits gave the peasants more money, therefore less incentive to exert themselves beyond a self sufficing stage because Russian industry taken over by the war machine had nothing to offer these rural purchasers. The consequences were that the cities literally hungered within sight of bursting barns.

The ruin of Russian agriculture came from within, not from without and was caused by (1) the Agrarian Revolution and (2) the policy of the Soviet Government relative to the feeding of its industrial population—its food procurement policy. The agrarian revolution involved the seizing of the large estates and the attempted equal distribution of the land to the peasants. This led to redistributions, seriously hampering a program of efficient land use. The leveling of the peasant farms was coincident with the general decline of agriculture.

Under its food procurement policy, the Soviet Government took from the peasants, almost without recompense, the surpluses of grain stored up as reserves against the possibility of low yields in drought years. This stifled any expansion of agriculture beyond the needs of self sufficiency and made possible the catastrophe of 1921-1922 when millions perished in the famine following the unusually severe drought of 1921 because the now powerful Soviet Government had confiscated these grain reserves of the peasants.

The grain-crop-area of 66.2 million hectares in 1922 was the smallest on record, 36.5 million hectares or 36 per cent less than in 1913. This reduction affected particularly the market grains, wheat (reduced over 60 per cent) and barley. Rye, the peasant bread grain, was reduced but little. Russia under such conditions could not represent herself as an exporter of grain but primarily as the recipient of the bounty of other nations.

III. The Grain Exports Under the New Economic Policy—1922 to 1928

Through the announcement in March 1921 of the new economic policy (called the NEP) better conditions were created for the development of the grain enterprise. Instead of the confiscation of grain, a grain tax was substituted which soon was changed to a bearable money tax. Commerce and private business were permitted again and soon the Soviet, which previously had attempted to abolish money, sought to establish a stable exchange.

After overcoming the famine of the year 1921-1922 a rather

rapid process of rebuilding agriculture set in. During the 4 years, 1922-1926, the grain areas increased from 66.2 million hectares to 93.7 million hectares which, however, was still 9 million hectares less than the 1913 area. The Volga area had recovered only to the extent of 72 per cent and the Caucasus to 63 per cent of the grain area in 1913. This situation forced the Soviet to transport grain from Siberia at great cost.

Following the famine the population increased so rapidly that the production of 1926 lacked 14 per cent as much grain per capita as was available in 1913. In addition to this the power problem made itself felt for horse numbers had not been increased since the reduction of the war and post war years. If the population was to be fed in anything like the previous manner no grain could be available for export.

The Soviet sought to procure grain for its industrial population and for export through the medium of its governmental trading organizations. In this it was successful in 1923 through currency manipulation and other but slightly concealed measures of force. The unusual character of this export is seen from the fact that over one-half of the grain for export consisted of rye. This situation ensued as a conseqence of the imperfect development of the NEP.

These purchases of grain in 1923-24 were at such a disadvantage to the peasants that they were unable to buy the products of industry. Because of this situation industrial prices were reduced 30 per cent in an attempted expansion of the NEP system, which included also better monetary conditions and the change of the nutrition tax to a more moderate tax. Market intercourse was stimulated, private marketing was again permitted but in doing this the Soviet had weakened its own position to the advantage of the peasants.

Despite a crop failure in 1924 the Soviet wanted to have a sizable export. Private business, however, offered more for grain than did the government and the Soviet attempt to exploit agriculture for building up urban industry was not successful.

The favorable effect of the NEP system helped to overcome the discouragement of 1924 and produced an expansion of the grain area in 1925, a year of favorable harvest. Despite this, however, the Soviet again had trouble in its grain procurements. The inner market had developed and the peasants held grain preferring to sell other products thus forcing the state buying organizations to raise prices above the pre-war levels. Exports under this situation decreased.

The Soviet Government recognized the failure of its grain procurements of 1925-1926 but would not admit that its ambitious plans were inconsistent with the existing economic conditions. It blamed the wealthy peasants, the Kulaks, who as a consequence were disenfranchised, the inter-regional grain trade was suppressed and a gradual paralysis of the private marketing activities was attempted through administrative measures.

The favorable effects of the NEP, still felt to some extent in 1926, encouraged the peasant seeding and the harvest of 1926 was almost equal to that of 1913. The Soviet attempted to gain its procurements by means of increased agricultural taxes and an enforced payment through which it was successful in forcing prices down. But the peasants again were dilatory in selling, preferring to dispose of other products, especially their livestock, in which the private marketing organizations still played a leading rôle. Since the government procurements had to go in large part to feed the urban industrial population only a small quantity was available for export, again less than in the year 1923-24.

The grain crop area in 1927, in comparison with the previous year, expanded but little. The peasants had lost every interest in a sale of their grain. Because of the Soviet program of expansion of its state-owned industry large quantities of paper money were issued developing a disproportionality between the fixed prices of the industrial products and the quantity of money; the demand for goods exceeded their supply. This discrepancy was called a "goods hunger" in the USSR. The harvest of 1927 turned out badly and the peasants wanted to sell their limited grain supplies for real goods and not for paper money. The products of industry, however, were not to be had in the rural areas. The Soviet Government therefore found it necessary in January 1928 to return to the expropriation of grain. In the case of most of the peasants the grain was taken at low prices; in the case of the larger peasants it was simply confiscated without recompense under the accusation of speculation. Thus the last support of the NEP was taken away. The further expansion of the grain area was thereby finally brought to a standstill.

The grain procurement policy of the Soviet Government underwent certain changes up to July 1929, for the Government hesitated to suppress entirely the marketing of agricultural products. Through all manner of open and clandestine measures of force the government was successful in securing from the harvests of 1927 and 1928, both of which were rather unsatisfactory,

almost as much grain as from the harvest of 1926; but it could no longer achieve a grain export, for with the rapid increase of the industrial population its demand for grain had also increased. The Soviet Government which was dissatisfied with the results of the grain exports of the years 1925-26 and 1926-27 now through the disruption of the NEP made the export of grain under the given social structure, the peasant agriculture, utterly impossible.

IV. The Grain Exports in the Period of the Socialization of Agriculture

On the first of October, 1928 the five-year plan came into being. It was based upon a considerable export of agricultural products. The grain exports in the last year of the plan (1932-33) were to reach the sum of 8 million tons.

Because of the unsatisfactory procurements of grain from the harvest of 1928 real bread shortages developed in the rapidly growing cities and by the spring of 1929 it was necessary everywhere to return to the bread rationing of the years of war communism. The failure to achieve a grain export in the year 1928-29 developed doubts as to the five-year plan which at that time was thought to be possible of execution in 4 years. When the Crop Estimating Board of the Statistical Central Office estimated the harvest of 1929 at a low figure and a correspondingly modest program of grain procurements was inaugurated a general indignation arose in governmental circles; the leading statisticians were accused of bourgeoisie-mindedness and sabotage and the statistical office was "cleaned" of them. It lost its independence and was subordinated to the state planning commission. The Soviet Government sought a way out through the application of the harshest measures in securing its grain procurements. The larger peasants were finally to be ruined and the market exchange of agricultural products forbidden. The grain harvest was now estimated at a higher figure than the Statistical Central Office previously had estimated it, and the procurement program increased to 13.9 million tons. By the end of 1929 the entire assessment was enforced and with the milling tax the total grain procurements reached a figure of 16.2 million tons.

From a peasantry handled in such manner nothing further could be expected. With the close of the year 1929 the Soviet Government hit upon the idea of the complete collectivization of the agricultural population. By the spring of 1931 through measures of unrelenting harshness 60 per cent of all the peasantry in all of the major grain areas was collectivized.

The Soviet Government planned at the same time to mechanize the agriculture in the collectives. For this purpose machine tractor stations to take over the seed-bed preparation were organized. Up to October 1, 1932, 2245 such stations equipped with 81,183 tractors of 1.3 million horsepower were established. In the year 1932 the seed-bed for approximately 20 per cent of the collectivized acreage was prepared with tractors. At the same time the establishment of State Farms was pushed. In the eastern areas unusually large, fully mechanized, state farms (grain factories) based entirely upon grain production and especially wheat production, were established. In this manner the lost grain production of the southeastern part of European Russia was to be retrieved and at the same time new areas were to be opened for agriculture.

By reason of these measures of policy an entirely new situation developed relative to the state grain procurements. Already in 1930 there fell upon the socialized sector, that is, the collectives and the state farms, a third of the grain area. In 1931 this amounted to two-thirds, in 1932 over three-fourths. In the same year, 1932, the collectives alone operated approximately two-thirds of the grain area. The collectives whose land was prepared by the machine tractor stations found themselves in a state of dependence upon these stations. Further, communists had been placed at the head of most of the collectives; their main task being the strict fulfillment of the governmental orders. Through measures such as the above the Soviet Government gained control of agriculture. The agricultural products now were at the disposal of the central government in almost the same measure as were those of industry. After the government had procured the previously unheard of quantity of 16.2 million tons of grain in the year 1929-30 through the use of the harshest measures of force it was successful in obtaining from the harvest of the next year, 1930, which, thanks to favorable weather conditions was an ample one, 22.2 million tons of grain. In the following year, 1931, the steppes suffered a drought. The Soviet Government, however, was of the opinion that a socialized agriculture could overcome the unfavorable conditions of the weather. The grain procurements were computed at a still higher figure than in the preceding year, although this had to be reduced appreciably later. Nevertheless the quantity taken out of the harvest of 1931 reached the figure of 23 million tons.

In spite of these large quantities of grain which, by the way, were but little less than those marketed before the war, the gen-

eral bread rationing of the industrial population was continued. This permitted a considerable quantity of grain to be exported. The year 1929-30 had already witnessed a grain export to the extent of 2¼ million tons. In 1930-31 the Soviet Government was successful in exporting 6.2 million tons, approximately 60 per cent of the pre-war grain exports. In this, the first year after the inception of the enforced collectivization, there was a larger quantity of grain exported than in any year since the revolution. In the following year only 4.5 million tons could be exported although the quantity of grain procured was somewhat greater.

This re-appearance of Russia on the world market with appreciable quantities of grain and at the moment of an over-production crisis caused a great surprise. The Soviet Government announced that, on account of the collectivization of her agriculture and the building up of the mechanization of her State Farms, she would soon be in a position to put upon the world market as much grain as before the war. She explained her willingness to accept low prices in the sale of her grain by saying that in the mechanization of her agriculture and especially in the building up of her extraordinary "grain factories" she had hit upon a method of producing grain more cheaply than was possible under the conditions of a capitalistic economy. In the 16th party conference of June-July 1930, Stalin and the Commissioner of Agriculture, Jakowlev, announced that the grain problem was solved and later the large quantities of grain which the Soviet Government acquired from the harvests of the years 1930 and 1931 were available as evidence of the correctness of this prediction. The determining question remained, however, whether the increase in the grain procurements was a consequence of an increase in grain culture or simply a consequence of the entrenchment of the power of the Soviet Government in the rural areas.

Before testing this question on the basis of the figures of the present day Soviet statistics a number of governmental edicts should be cited which clearly express the fact that Russian agriculture today finds itself in an extraordinarily difficult position. The year 1931, in which the steppe areas experienced a drought already gave evidence of the disastrous consequences of the heavy taxation. After the heavy taxes came into being in the fall of 1931 it was necessary to announce officially that in much of the crop area for that year no harvest could be achieved, and that the mechanized agriculture had by no means increased the resistance of the seedings to drought. On the 17th of February 1932 there came a governmental edict which among other things

said that a number of the kolchoses and sovchoses of the eastern area were not able to carry out the spring seeding because of lack of seed. In a number of cases they lacked food also. The situation was so acute that the Soviet Government saw itself forced to return to the kolchoses and sovchoses of this eastern area almost a million tons of grain. (As far as the individual peasants were concerned no one troubled himself in the USSR.) The condition in the Ukraine was no better though it received no help.

In the spring of 1932 the mood of the rural population was so depressed that the Soviet Government was forced to reduce its demands upon the harvest of 1932 by 20 per cent in comparison with the preceding year; only 18.1 million tons were to be delivered. With that the Soviet Government admitted quite openly that its former program did not correspond to the productive powers of agriculture. In order to stimulate the peasants to an expansion of their crop areas the government after a period of years of careless consideration of the market conditions permitted them to sell upon the open market the grain remaining after fulfilling the government requirements. In the autumn of 1932 it was evident, however, that meeting these reduced plans of grain procurement was no easy task. The peasants gave stubborn resistance and those who were at the head of the kolchoses, leading Communists, often showed themselves sympathetic with the peasants. Punitive expeditions had to be sent to the North Caucasus and to the Ukraine. The fall of 1931 witnessed a grain scarcity both in the rural areas and in the cities which in many cases reached a real famine. For this reason and also because of the danger of war in the Far East the Soviet Government thought itself compelled to refrain from attempting a larger grain export from the harvest of the year 1932. In view of the fact that Stalin in the summer of 1930 had declared that thanks to the socialization of agriculture the grain problem was solved, it was necessary for him in his speech of January 7, 1932, in which he gave a survey of the progress of the five-year plan, to admit that the collectives and the state farms were not profitable.

Consider now the question of the evolution of agriculture under the influence of socialization in the light of Soviet statistics. The statistics of the crop areas and production are at best undependable. Particularly difficult, however, is this branch of statistics if the population, as in the USSR, stands upon the lowest cultural plane. So long as the Statistical Central Office maintained

its independence it did not lack the sincere efforts of the best scientific minds in correcting the material received and on the basis of careful trial censuses in arriving at more exact figures. The governmental reform of January, 1930, however, worked out very unsatisfactorily for the dependability of the Soviet statistics for, first of all, the Statistical Central Office lost its best scientific workers, and, second, statisticians received orders to take part in the battle of socialism against capitalism.

The effects of the socialization of agriculture should have shown themselves first in the spring of 1930 after the initial impetus of the forced collectivization. This was not the case, however, for in spite of the great number of tractors which were placed at the disposition of agriculture and in spite of ample spring precipitation the spring grain area was reduced from 64.6 million hectares in 1929 to 61.1 in 1930, or 5.4 per cent. The spring grain area of the peasants (collectives and non-collectives together) as a matter of fact was reduced from 63.5 million hectares in 1929 to 58.4 million hectares in 1930 or a reduction of 8 per cent. Even though in the year 1930 the total grain area was increased by 2.6 million hectares over the previous year this is to be explained by the fact that winter grain, on account of favorable weather, suffered but little damage while in the two preceding years large areas of grain were winter killed. The average per hectare harvest of the year 1930 was large, due primarily to very favorable weather conditions.

According to the Soviet statistics an increase in crop area of 5.9 million hectares took place in 1931. It is to be noted, however, that the peasant crop area in that year increased by only 1.6 million hectares. The small increase of 1931 as far as crop area was concerned was entirely lost in 1932 and particularly to be noted is the fact that the harvest of 1932 in spite of rather favorable weather conditions turned out badly in the now almost completely socialized agriculture.

As a matter of fact the crop area seeded in season is in reality less than one would conclude from the figures. Russia has a continental climate, the seeding time is very short and lasts in the spring, in the various areas, from 2 to 3 weeks. In this short time the seeding must be undertaken energetically. Energy, however, is lacking in the collectivized group and work stock also is lacking. Since, however, the size of the crop area is determined from above, the machine tractor stations and the state farms attempt, at least formally, to fulfill their requirements, and therefore the seeding stretches itself out over several months. A de-

tailed analysis of seeding shows that in the year 1931 the timely seeded area really was no greater than that of the preceding year, but actually was smaller. That which was seeded late ordinarily produces only a modest harvest or no harvest at all. On the basis of the preceding statements it is possible to compute the relationship between the grain demands of the government and the total harvest. This reveals that outside of the favorable year 1930-31 the gross harvests in recent years have turned out unusually badly. The increase of the assessments indicates primarily that an ever increasing percentage of the harvest was taken by the government while the quantity of grain remaining for the population decreased. In 1931 the government took one-third of the gross harvest but in 1932 it was necessary to reduce the assessment.

It remains to be determined in how far a grain export under such conditions really was justified. The net production per capita of population even in 1930-31 was about 10 per cent smaller than in 1913; in 1932 and 1933 it was approximately 30 per cent smaller than in 1913. After subtraction of the exports there remained in 1913, 4.2 d.z. per capita of population. If we take this quantity as normal it is clear that under present day conditions in Russia agriculture an export of grain has absolutely no place. It is, however, significant that in the year 1931, 1.1 million tons of rye were exported through which the abnormal character of the export is indicated. Although the above computations because of the dearth of the Russian crop and production statistics carry within themselves much that is problematical they support by and large the conclusion that the Russian grain export must be considered as an arbitrary deed of a dictatorial government which in seeking certain non-economic goals has failed entirely to consider the rights of its people. Such a grain export certainly has no sound basis and can be realized only from case to case.

The question will now be examined why the Soviet Government is willing to sell its grain for such unusually low prices. Because of this she is accused, by her foreign competitors, of dumping, and oftentimes the opinion is expressed that the Soviet Government through her depressing of world market prices seeks to bring about the end of capitalism. In reality the above situation is a consequence of the specific structure of the Russian economy and also of the present difficulties of the Soviet finances. In the USSR, export trade is separated from other business. Owing to the foreign trade monopoly and the prohibition upon

taking Russian money in or out, prices on the Russian inner market stand in no relation to prices on the world market. They are incommensurable. For the Soviet Government therefore the prices for which she sells on the world market have no relationship to the prices which she pays on the inner market. The expression, "dumping," which carries with it a comparison of the in- and outer-market prices is not to be considered here.

Irrespective of how the Soviet Government may look upon capitalism the opinion that it is premeditatively ruining prices on the world market is untenable. The Soviet would like nothing better than to sell its wares at favorable prices. If it is not successful in doing this it is in part due to the unsatisfactory organization of the Russian export trade. Primarily, however, this is traceable to the present world market condition. The prices of raw materials of which Russian exports mainly consist, have (quite apart from the so-called Russian dumping) fallen the most. The Russian export trade is passive. The Soviet Government is very much in debt to other countries and the punctual meeting of these payments causes its difficulties. By such an unfavorable financial situation the government is forced to accept even the lowest prices in order to provide itself with its immediate needs in bills of exchange.

The implied low production costs of grain on the state farms play no particular rôle here. Almost 90 per cent of the grain procurements are received by the Soviet Government from peasants under pressure of the conditions of inflation at prices which have been fixed for four years. Concerning the cost of production of grain in the collective and non-collective peasant farms, it needs have no concern. Whether such a socialized economy will endure from a long-time point of view remains obviously a question.

V. The Future Prospects of the Grain Export

The present-day conditions of Russian economy do not justify a grain export. Only a dictatorial government could achieve the unusual grain export of the years 1930-31, 1931-32; a situation which must eventually lead to catastrophic consequences. Possibly the whole situation is but a temporary condition which will pass?

In order to answer the above question it is necessary to consider the reason for the present unfavorable relationship between demand and supply in the field of grain economy. This situation has resulted from the fact that the Russian population has now grown about 15 per cent in comparison with its

pre-war numbers, while the grain area of pre-war times has barely been equalled. The per unit area harvests have fallen. In this manner the grain surpluses in Soviet Russia have disappeared. The insufficient grain crop acreage is partly a consequence of a reduction which has taken place in the central and densely populated areas through the expanded area of other crops. This goes hand in hand with the Russian industrialization policy. The so-called "technical cultures" which furnish industrial raw materials such as flax, sugarbeets, etc., are favored by the Soviet Government at the expense of the grains. The government exercises a certain amount of pressure upon the peasants in order to stimulate the expansion of the acreages of these technical cultures, the grain farmers being neglected.

The opening of new crop areas through the colonization of peasants as was the custom before the war was considered undesirable by the Soviet Government. It wanted to open up new areas after the fashion of the state farms, especially the grain factories (sernosovchosy). By this means the Government was successful in recent years in bringing into culture those areas in southeastern European Russia which had been lying fallow since the catastrophe of 1921-22, but the opening of entirely new areas was possible only to a very limited extent. The German agricultural representative in Moscow, Dr. Otto Schiller, computes that under the five-year plan barely four million hectares of new land were added.

The decline in the harvest yields is closely associated with the destruction of the large estates, including the larger peasant farms and with the chaos which the enforced collectivization has brought about in agriculture.

It is hardly to be expected that in the future grain will again surpass the other cultures. In fact the development of the technical cultures has been carried too far. They demand very careful attention and since this is not accorded them in the socialized agriculture the results are fatal. The yields of the technical cultures per unit area reach barely half that of pre-war time although at that time they were already quite low. The Soviet Government has finally come to the conclusion that there is no sense in attempting to expand the technical cultures, striving now to secure for them primarily better attention. However, Russia will remain in the grip of the industrialization and of the intensivation of agriculture. A reduction of the acreage of these technical cultures is not to be expected.

The forced collectivization has caused the greatest damage in

the field of livestock culture. According to the computations of competent researchers Russia's animal industry is said to have declined by one-half. This has reduced the demands for feed grains but because of the reduction in horse power and the decrease in animal manures this break-down of the livestock enterprises must soon work out to the disadvantage of her crop harvests.

The difficulty in the resumption of a grain export lies in the fact that the population now is more than 15 per cent greater than before the war, while the grain areas have barely reached the previous figure. In order that Russia could be in a position to have regularly available a grain export as large as that before the war, her grain enterprise must first be developed to equalize the loss of the past 20 years, i.e., the unfavorable relationship between population and crop area, and secondly it must be developed in conjunction with the further growth of population. An increase of the grain areas at the pre-war tempo would therefore be quite insufficient at this time.

The increase of the Russian grain area, however, is limited by certain natural conditions; while in the Great Plains of the U.S.A. before the War the isohyete of 380 mm. was considered as the limit of grain culture, the Russian peasant in his colonization has forged northward to the isohyete of 250 mm. The colonization of European Russia had already reached a standstill before the war.

Certain opportunities for colonization still exist in Asiatic Russia. But the trend of colonization before the war showed clearly that here also the better soils in the better locations by and large had already been taken up. The extensive Kirgis steppe (Kasakstan) the largest remaining colonization area, has an extreme continental climate as a consequence of which grain culture is attended by unusually great risks. The grain surplus areas of Asiatic Russia also lie very far away from the inner market of European Russia, and also far away from the export market. This is the reason why the grain in the last few years had to be brought upon the very distant markets of Siberia and Turkestan. It is not to be expected that, through a rapid expansion of the grain crop areas of Asiatic Russia, that an important grain export in the future will be possible.

The very low Russian yields obviously could be increased. That is, however, a slow process which will be offset by the increase of population. It must also be taken into consideration that a continuing evolution of the Russian economy will lead to a better

nutrition of her people; therefore, the per capita consumption of grain, and particularly of the feed grains for livestock, must increase.

The Soviet Government bases its optimistic hopes for the rapid advances of the Russian grain enterprise on the socialization of agriculture. For this reason it will be necessary to sketch hastily an estimate of the value of that form of economy. Of unusual importance is the problem of the collectivization of peasant agriculture, for upon the peasant fields fall more than 90 per cent of the combined grain areas of the USSR.

The Russian peasants were in no wise prepared for a collectivistic life through their experiences of the past. Never and nowhere had a Russian community conducted a common economy and only through the most drastic measures of force could the Russian peasants be brought together into collectives. By reason of this the future of the collective is very doubtful. They really are not true cooperatives. The members as a matter of fact receive no definite wage but are dependent upon the results of the business; if these turn out badly then the members must starve. The election of the leaders is according to the dictates of the communistic party, and the most important questions of the inner life of the collectives are determined by the decisions of the central government. The main task of the leaders is the strict accomplishment of governmental orders, particularly the punctual delivery of the assessments. The leaders are much more officials than representatives of the interests of the members. It is not to be wondered at that most of the peasants consider the collectivization as a second bondage.

The tasks confronting the collectives are much too complicated and their leaders, who stand upon a low cultural level, are not equal to them. The accounting, so much needed in a business in which hundreds of families have been brought together, cannot be conducted properly because of the lack of experienced workers. For this reason great disorder prevails. The work is done after a fashion. Never were the Russian fields so weedy as after the collectivization. Further the population is so discouraged by the heavy assessments that they leave a considerable proportion of the grain unharvested in the fields, a condition never before observed. Finally there ensued a considerable thievery of the unthreshed grain from the fields. In this manner the members hoped to supply themselves with their necessities before the levying of the assessment. In order to bring about some form of order in the collectives the government was forced to resort to a reign

of unmerciful terror. This new wave of terror gives evidence of the unbearable conditions which prevail in the collectivized agriculture.

The other measures from which the Societ Government expects an expansion of agriculture is its mechanization. In 1932 approximately 150,000 tractors were at work in Russian agriculture. The positive significance of this fact is offset by the circumstance that at the same time an unusual destruction of the animal work stock had taken place. The number of work horses since collectivization had been reduced by approximately one-half, and therefore despite the introduction of tractors, instead of an increase, actually a decrease of draft power to the extent of about one-third had taken place.

But possibly the mechanization of agriculture means a significant advance in the quality of the agricultural work? It has been demonstrated that the rapidly enforced mechanization of Russian agriculture is also without results in this quarter. This fact comes most clearly to expression in the extraordinary 100 per cent mechanized grain factories. Certainly optimum conditions for the use of tractors should have been present on these farms and yet the average per hectare yield of their main crop, spring wheat, in 1929 was 5.0 d.z., in 1930 6.4 d.z., in 1931 3.4 d.z.; therefore approximately 30 per cent less than the average harvest of spring wheat in the country at large. It is certain that the mechanization of agriculture under Russian conditions did not lead to an increase of yields. And this is not to be wondered at for an increase in production is to be reached only through a system of agrarian political measures, not through the application of a single measure. The lack of a corps of qualified workers for servicing these complicated machines also resulted in their abuse; they were quickly worn out and because of this their profitableness was questionable.

The Russian grain export apparently reached its maximum development before the War. A gradual decline in grain export was apparent in subsequent years. The War and the revolution have destroyed all the basis for the Russian grain export at one stroke. Now since the growth of the population has overtaken the development of the grain enterprise the lost ground is not to be recovered. If we assume that the problem of socialization of Russian agriculture has been happily solved either through the clever building out of socialistic forms or through the return to private economic forms (in spite of the strong socialistic tendencies of the government certain movements toward such a de-

velopment are apparent) even by such presumptions the consequences will not be changed. Not much is to be done by dictatorial measures. The industrialization of the country, of which in spite of all its lack much will remain, is unfavorable for a large grain export. Russia appears to have lost her hold on the world grain market in favor of her overseas competitors. Since the revolution the grain export has ceased to serve as the most important tie between Russian economy and other countries. This tie with the outside world must now be replaced upon some other basis.

AN ANALYSIS OF RURAL SOCIAL ORGANIZATION AMONG THE FRENCH-SPEAKING PEOPLE OF SOUTHERN LOUISIANA[1]

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This paper deals primarily with the ecological aspects of rural social organization. This is partially due to methodological reasons. Fundamentally, however, this delimitation of the subject is due to a firm conviction that the relationships of farmers' dwellings to the land and to one another is basic to all rural social organization and consequently a logical beginning for any analysis of the structure of rural society.

From the ecological standpoint two sharply contrasting types of rural social organization are widespread: (1) the village community, typical of a large part of European agriculture, characterized by the close spatial relationship of farmers' dwellings to one another, and by a remote relationship between the dwelling and the cultivated land; and (2) a system based upon isolated farmsteads, characteristic of America north of Mexico, where the relationships of the farm home to the land are close and intimate, but where the relationships between the dwellings of different families are remote.[3]

It would lead us too far astray to point out all of the characteristics or to trace the development of these two types of organization, since they have been the subject of much analysis and debate among students of the several social sciences, history, economics, government, and sociology. It is sufficient to list a few of the outstanding advantages and disadvantages of each type. For example the positive characteristics of the village community seem to be: (1) close, intimate contact with a large number of neighbors; (2) proximity to social institutions; (3) nearness to numerous playmates for the children; (4) greater opportunities for mutual aid, both in neighboring and exchanging work; (5) more adequate protection against fire and against lawless elements; and (6) economical securing of modern conveniences, electricity, telephone, gas, water, hard-surfaced roads, etc.

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[1] This paper was read before the Section on Rural Sociology, American Sociological Society, at its annual meeting at Philadelphia, December 1933.

[2] The writer wishes to express his appreciation to Mr. C. L. Folse, a graduate student in the Department of Sociology, Louisiana State University, who did the field work for this study. He also is grateful to the people living along Bayou Lafourche whose whole-hearted interest and cooperation made it possible to secure data from every family approached.

[3] A thorough analysis of the characteristics of these types of organization and a summary of the literature pertaining to them is given by P. A. Sorokin, C. C. Zimmerman, and C. J. Galpin in their *Systematic Source Book in Rural Sociology*, Vol. I, pp. 263-304. (University of Minnesota Press, 1930)

But the village community also has some disadvantages: (1) due to the remoteness of the cultivated lands, daily trips between the village and the fields are necessary. These consume much time and tire man and beast; (2) the proper care of livestock constitutes a great problem. Either the work stock, milk cows, and other livestock must be left by themselves in the fields, or they must be driven back and forth daily, feed transported to the village, and the barnyard manure hauled back to the land; (3) to haul all grains to the village for threshing would be very uneconomical, hence much of it is done in the fields. This wastes many by-products which chickens, pigs, etc., could utilize, had they but access to the threshing grounds; and (4) it is very difficult to give daily attention to the conditions of the soil and crops, and this is especially true if the farmer's holdings are scattered about piecemeal as they almost always are wherever the village community type of organization is found.

As contrasted with the village community, a system of organization based on isolated farms offers the following advantages: (1) close, intimate and constant contact with the land and crops; (2) fewer complications related to maintaining and caring for livestock; (3) greater opportunities for utilizing the by-products of the farm; (4) an elimination of the efforts needed to haul feed to the village and manure to the farm; and (5) more plentiful opportunities to observe carefully the conditions of the soil and crops. But this type of organization also has its disadvantages. Chief among these are: (1) scarcity of neighbors and infrequency of social contacts; (2) remoteness from social institutions; (3) scarcity of playmates for the children; (4) relative lack of opportunities for mutual aid; (5) difficulties in securing adequate protection against fire and against unlawful elements; and (6) comparative expensiveness of securing modern conveniences.

All in all it appears that the village community obtains the advantage of a high degree of social integration and cohesion at the expense of a low degree of economic integration and cohesion, while the isolated farm obtains a high degree of economic integration and cohesion at the expense of a low degree of social integration and cohesion. If one engaged in social planning were to decide between the two, it would be necessary to do so by weighing the economic advantages of the isolated farm against the social advantages of the village community. Any decision reached would be sure to bring forth sharp criticism from one side or the other. Happily the choice is not limited to these two types. The thesis outlined in this paper is that among the French-

speaking people of southern Louisiana, a type of organization exists which combines the economic advantages of the isolated farm with the social advantages of the village community, without the major disadvantages of either.

The French-speaking migrants who came to Louisiana from France and Acadia established in this country a pattern of organization with which they had been familiar in the "old country."[4] The unique thing about it was the method of laying out the lands. Rivers and bayous were taken as the points of departure, and plots were laid off measuring so many arpents along the bayou and so many arpents back towards the swamp. Since the width of the holdings was always very slight as compared with the length, a map of an area so laid out, presents the picture of a series of very narrow strips laid side by side. Each strip heads on the stream or bayou, cuts across the highlands which the overflow from the bayou has built up, and butts against the swamp with its abundant growth of timber. As the waterway twists and turns, the rows of strips flanking it on either side twist and turn with it.

The settlements on Bayou Lafourche in southern Louisiana were established according to this pattern. In order to show more clearly the advantages of this type of organization an intensive study was made of a section in which it prevails.[5] A four-mile segment of the territory lying along Bayou Lafourche was visited and data secured from each family. The area chosen lies on the western side of the bayou, midway between the town of Thibodaux and the village of Raceland. It centers at the St. Charles public school where a bridge crosses the bayou and gives access to the St. Charles Catholic Church which lies on the opposite side. The region studied consists of those portions of the service areas of the church and school which lie on the western side of the bayou. Along this four-mile stretch are located the homes of 120 families, including 95 homes occupied by farm operators; five by colored farm laborers; eleven by white farm laborers, six by dependent families of whom two are families of widows, two families of aged couples and two others; and the remaining three are the homes of a produce dealer, a merchant, and a carpenter. Much the same thing is present on the other side of the bayou except that several large plantations complicate the pattern.

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[4] For a survey of the types of rural organization prevailing in France see Jean Brunhes, *Geographie Humaine de la France*, Vol. I, pp. 445-482 (Paris, 1920).

[5] The more detailed information concerning this neighborhood will be given in a thesis which Mr. Folse is preparing in partial fulfillment of the requirements for the M.A. degree at Louisiana State University.

The 95 farms average approximately 220 feet in width and extend back about a mile and one-half. These farms which are very uniform in size average around 40 acres. Eighty-one of the 95 farms are owned by the operators, and several of those which are rented are leased from such near relatives of the operator as brother, mother-in-law or uncle.

The population is overwhelmingly of French extraction, 108 of the 120 families reporting French as the line of descent on both sides. Families reporting mixed descent, numbered only six, consisting in three cases of French and German, in one case of French and Irish, in one case of Scotch and French, and in one case of German and Spanish ancestry. In addition there is one family of German descent. Five families of negroes complete the total of 120.

In language, too, the neighborhood is overwhelmingly French. Eight families reported French as the only language spoken in the home, while only one, that a negro family, reported English as the only language used. The remaining 111 families reported the use of both French and English in the home, but French was the language stated to be most commonly used in 94 homes and English in only 17 homes. The field worker reported that the use of English by the children in school carries over into the home to a minor degree, but that French is overwhelmingly the language of the community. Indeed the securing of data was possible only because the worker himself could use the French language.

Except for the five families of negroes the population is solidly Catholic in religion, not a single exception being found. A similar homogeneity in politics is present, all being Democrats, and all of the white families except ten contain members who are registered. Nearly everyone reported voting in the last election.

Trait after trait might be enumerated but those already considered should suffice to give some impression of the neighborhood studied, of the great homogeneity of the group, of the strong intimate ties which characterize it, morphologically, and of the suitableness of the area for ecological analysis. Let us now turn to an examination of our thesis.

To demonstrate that this type of organization possesses the advantages of the isolated farm is unnecessary, because each farmer actually dwells on his farm, in immediate proximity to the fields he cultivates, with his sheds and barns for grain and livestock and his stacks of feed in the immediate neighborhood of his dwelling. It should be noted in passing that some disadvantage from the standpoint of farm management may arise out

of the narrowness of the strips of land, but the specialist in farm management at the Louisiana Agricultural Experiment Station[6] assures us that they are not serious. Since each farmer lives upon his holding, the thesis of this paper will be proved if it can be shown that this pattern of rural organization secures the social advantages of the village community.

As stated above, farms in the four-mile stretch along Bayou Lafourche average 220 feet in width. Each dwelling is built at the front of the holding near the bayou with the result that the settlement presents the picture of a long one-streeted village winding its way across the country side. Behind the dwellings are the cultivated fields, long narrow strips running back about one mile and butting against the woods and pastures which constitute the rear portions of the holdings. Deductively one can surmise the possibilities such a system offers for social interaction, and the objective facts substantiate the theory.

Counting only those on the one side of the bayou the average number of neighboring families within a mile of a given family is sixty, within a half mile, thirty, or a quarter mile, fifteen. Similar conditions on the opposite side of the bayou would double this number. Thus from the standpoint of number of neighbors, this type of organization approximates the village community. On the qualitative side there is a tendency for neighbors to be closely related to one another. Thus, seventy-two of the families had as their nearest neighbors on one side or the other, the family of some relative. And in forty-two cases this relationship was either that of parent and child, or of children of the same parents. The seventy-two cases take no account of relationships more remote than first cousin. This brings out strikingly the fact that one's closest neighbors are those to whom he is tied by the most intimate and durable of social ties—physiological kinship. The large number of neighbors, their similarity in race, religion, occupation, and political beliefs, and their close kinship provide ample opportunity for social interaction and effectually insure against social isolation.

The close, intimate contact with a large number of relatives and friends greatly extends the possibilities of neighboring and mutual aid. For example, the number of farmers with whom it is possible to exchange labor is nearly as large as in the village community. The ease of making arrangements is also much greater than if the farms were isolated. Just as in the village

[6] Dr. R. J. Saville.

community, assistance in time of sickness, trouble or distress is always near at hand. If the family is away from home, the watchful eyes of neighbors can be on the alert to see that all is well about the house and the farm property. A neighbor is not greatly inconvenienced by doing a few chores for a family which is absent from home. A volunteer fire crew is always in the immediate neighborhood.

A very important feature of this bayou settlement is that the numerous families of neighboring relatives and friends supply abundant playmates for one another's children. The visitor to Bayou Lafourche cannot help but be struck by the large number of children who are everywhere to be seen. A count showed that the 120 families contained 127 children less than 12 years of age. Sixty children under 12 within a mile of one's home and an additional 60 just beyond (not to mention those over 12 and those across the bayou) one can readily see is a radical departure from the situation on the isolated farm, and approximates the condition found in the village community.

The immediate proximity of social institutions is another great advantage. The service areas of the church with its 1,200 members, the elementary school with its 220 members and the high school with its 51 members extend only two miles in each direction. These institutions are not only present in the neighborhood, they are used. Of the 120 families, 109 reported the practice of attending church at least once a week. Despite the fact that no busses operate in Lafourche Parish to transport the children to and from school, the principal reports the attendance in both the elementary grades and in the high school as extremely high. Since only 35 of the 120 families have automobiles, these data should illustrate the fact that this type of organization approximates the village community in providing close and intimate contact with social institutions.

Contacts with economic agencies present some unique features. These can best be discussed after the advantages which this type of organization offers in the economical securing of modern facilities for communication and transportation, and other modern conveniences have received attention. It should be apparent that these advantages are very great. To begin with, four miles of concrete pavement provide a roadway passing directly in front of every one of the 120 dwellings. If we consider only the 95 homes of farm operators, this represents a great saving over the 15½ miles of pavement which would be required to reach the homes of 96 families living in an area corresponding in size and

laid out into 40 acre plots according to the checker-board system. The actual advantage is even greater, because bridges and ferries make the paved road of immediate service to the families living across the bayou. If economical securing of electricity, telephone, etc., is considered (to these the bayou offers no barrier) the advantage with the bayou settlement is almost eight to one. The fact that in this particular settlement only fifteen of the families avail themselves of the electric power and two families of the telephone does not alter the possibilities inherent in this pattern of organization. It might be stated that these families, like those in the village community, do not need the telephone as badly as families on isolated farms, and that in this neighborhood many homes which are wired for electricity have had the current shut off due to the pressure of economic circumstances in the last few years. Twelve of the families using electricity also possess radios, and ten dwellings are equipped with modern plumbing. More important in showing the advantages of this pattern of organization is the fact that 35 of the families reported the use of ice refrigerators. This is possible only because the highway and the density of population make it economically profitable for a truck from Thibodaux to deliver ice daily to the homes along the way. With this type of set-up, it is possible to have fresh milk, butter, meat, eggs, vegetables, ice cream, or any other perishable product, delivered daily to each home. Nearly every one on Bayou Lafourche keeps a milk cow and produces most of the other products named, but the possibility of contacting a great number of farm families quickly and cheaply remains.

The unique relationships to economic agencies which this neighborhood exhibits are possible only with this type of organization. When questioned as to where they purchased various articles, each family explained that trucks from various stores, especially the two located in the area studied, made the rounds daily and delivered all the goods needed. Of the 120 families, 97 per cent reported the practice of buying their groceries, 90 per cent their dry goods, 92 per cent their work clothes, 92 per cent their hardware, and 82 per cent their dress clothes, from these trucks. Furthermore they indicated that, although trucks from Thibodaux and Raceland also made the rounds, most of the purchases were made from their two storekeeping relatives, neighbors and friends. It is interesting to note that farm products such as eggs were accepted by the merchants in payment for the goods, and that both the stores carry relatively complete lines of all the goods mentioned. For drugs and for medical, dental and banking

services, Thibodaux and Raceland are resorted to although the contacts are primarily with the former.

Commercialized recreation consists mostly of movies and dances, likewise supplied by the town of Thibodaux and the village of Raceland. The central position of Raceland with respect to highways gives its dances great drawing power so that these entertainments which are held on Saturday nights are attended by people from a radius of 50 miles or more, and mingled among the crowd are representatives from one-fourth of the families in the area. Sunday night will find another group, representing one-sixth of the families, at the dance in Thibodaux. Saturday night movies attract members of fifty-seven families, mainly to Thibodaux. From the school, it is just eight miles to either Thibodaux or Raceland, paved all the way. If any who lack a car desire to go, neighbors and friends load theirs a little heavier and every one goes who wishes.

Within the neighborhood, the annual church fair is a time of great celebration. Two days of festivities, Saturday and Sunday, with dances each night constitute the proceedings. Literally every one attends, male and female, young and old, well-to-do and poor, owner, tenant, and laborer, all are there. In addition, the whole-hearted enjoyment arising from the frequent assemblages of friends and relatives, gives recreation within the settlement a tone similar to that of the recreation characteristic of the village community.

Let us briefly summarize the argument given in this paper. Much discussion has arisen concerning the relative merits of two types of rural organization, one based on isolated farms, and the other upon village communities. To choose between the two, one would have to decide whether the economic advantages of the isolated farm were more important than the social advantages of the village community, or vice versa. Such a choice is not necessary, since a third alternative is existent in the form of settlement established by the French-speaking people who settled southern Louisiana. Here every farmer lives upon his farmstead and thus secures the economic advantages of the isolated farm. But the system of dividing the land permits the formation of a village-like settlement which enables most of the social advantages of the village community to be secured. Data were offered to show that this bayou settlement offers abundant contacts with neighbors, close proximity to social and economic institutions, adequate opportunities for children to have playmates, excellent chances for neighboring, economical ways of securing the mod-

ern methods of communication, transportation and household conveniences, and better protection against fire and the lawless elements.

In conclusion let us urge at this time, when things are in a state of flux, when social planning is everywhere talked of, and when the re-location of large numbers of our population is being considered, that those responsible for the form the new settlement shall take, give some consideration to the possibilities offered by this type of organization. The bayou is no longer an essential element. When the settlements in Louisiana were established, waterways were the arteries of communication and therefore formed the logical points of departure. Today were settlements established according to this pattern the highway could be taken as the point of departure.

THE RELATIONSHIP BETWEEN THE AGRICULTURAL ADJUSTMENT ADMINISTRATION AND AGRICULTURAL ECONOMICS EXTENSION WORK IN THE SOUTH[1]

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The subject assigned for this paper is no less a task for me than that which confronted the Agricultural Adjustment Administration and the Extension Service last spring when the organization and program of farm relief were first launched. The problem is, "How can farm relief organized and managed by an entirely new branch of government, be most economically and efficiently handled by the extension forces already in the field?"

In my efforts at a description of the set-up used in the southern states, I do have, over the originators of the plan, the advantage of observing six months of trial (and in some cases error) of the program as it has been carried out so far this year.

In order that we may better understand the problems of such a program in the South, let us take a very brief glance into the set-up for disseminating economic outlook information before the emergency program was started. Here we find an extension field force made up primarily of county agents who utilized the major part of their time answering and administering to individual needs. The only time of the year when hogs, chickens, cows or goats could not be vaccinated was during that period in the spring when seed loan applications were being received. County agents everywhere were prone to let their program of work fashion itself around the number of calls received for individual help. This sort of a program, however, could not be blamed wholly against the county agent. In many cases it was what the people wanted and might be charged against what has been over-popularized as "the easy going South." In any event, however, one's program of work before the Agricultural Adjustment Administration was organized was destined to be molded around the whims of the fifteen or twenty leading farmers in the county with a dash of veterinary work and advisory counsel for the tenant classes. It was in such a state as this that in June 1933 the cotton plow-up campaign was announced.

When it became known that the different sections of the Agricultural Adjustment Administration would handle their field work through the extension forces, a new challenge was thrust

[1] This paper was read at the Twenty-fourth Annual Meeting of the American Farm Economic Association, Philadelphia, December 28, 1933.

upon extension workers—one in fact that meant the up-building or absolute downfall of extension work in the South. I put this bluntly because, as all of you know, the agricultural extension services everywhere were being judged with a very critical eye, and had they failed in this their big opportunity to prove themselves necessary and helpful, I think there is no doubt as to the outcome. In a very short time workers had to be assembled and taught the principles and purposes of the pending campaign. How to accomplish the end desired was left in almost every case to the individual initiative of the county agents, and, as results indicate, success attended practically every effort put forth. In this new era of extension work born of the agricultural adjustment program, county agents are no longer serving individual needs with the idea of satisfying a few farmers, but are thinking more in terms of country-wide cooperation. They have been serving an apprenticeship as promoter, postmaster, statistician, lawyer and judge and have done the job well. The lesson of wholesale administering is one that will last and undoubtedly will raise southern extension work to a level heretofore unknown.

I have mentioned the foregoing relationship between the Extension Service and the Agricultural Adjustment Administration in order that we may have a better picture of applied agricultural economics in the South before and after taking this new dose. Of course, one cannot predict absolutely the trend of individual efforts should the agricultural adjustment impetus be removed, but in any event after the three years of cooperation provided for, 1933-35, one can reasonably expect a carry-over of at least a portion of the knowledge and experience gained.

We, in North Carolina and perhaps in a few other sections of the South, have been either fortunate or unfortunate in producing in sizeable quantities, six of the seven basic commodities listed in the act creating the Agricultural Adjustment Administration, namely, cotton, tobacco, wheat, corn, hogs and dairy products. The scope of endeavor contained in working with these six commodity groups places attention on the vital problems of united cooperation, farm management, farm reorganization and land utilization. These four factors present themselves as the greatest problems and yet the greatest opportunities that the Extension Service of the South has ever encountered.

The act has opened the door for elective cooperation (semi-forced perhaps), which if handled properly may bear abundant fruit in the future in the bringing about of a closer relationship between farmers and state workers. Never before have farmers

cooperated to the extent exemplified during the past six months. It might also be added, that never before have they been in such dire need or received actual cash for such cooperation. It affords the extension service an opportunity to reach directly or indirectly every farmer in each county cooperating and serves as a basis for any cooperative effort that may at some later date be deemed necessary or advisable.

It presents problems of farm management that will require foresight, longtime planning, and a more careful study of the farm business than has been attempted before. Farmers of the South are very wary of any movement that will bare any of their farm facts to anyone, even including themselves. Probably a very small fraction of one per cent of southern farmers know anything about a farm inventory, not to speak of a farm business analysis, or simple cost accounts. The Agricultural Adjustment Administration requirements on farm records will in no wise clarify this matter to such an extent that farmers will be clamoring for assistance in record work, but should make it easier to impress a farmer with the importance of such matters. Such a program, if continued over a period of years, will do much toward making farm management extension work more popular through necessity if not choice.

The question of farm reorganization heretofore looked upon as a timely subject upon which much could be spoken and little done, is becoming with production control measures, in many cases a reality. The new deal in agriculture has taught the cotton and tobacco farmers of the South, that the Joker is running wild and is in the hand of the Agricultural Adjustment Administration. That group of farmers growing cotton or tobacco on all available crop land find that the 30 to 40 per cent of land left out of cash crop cannot be placed to any usage that will antagonize any of the other commodity groups. The contract, in most cases, specifies that the farmer shall not reduce his tenants below the number ordinarily carried on the farm. With crop land reduced 40 per cent and tenant numbers remaining at par what best course may be followed on his farm to bring about equity and justice to all concerned? The scope of such questions as this increase when the fact is considered that tenant income rates are already at bare subsistence levels. These and many other questions from various groups of farmers present themselves from the farm reorganization angle.

The exponents of land utilization will have an opportunity in the new deal to include in their already gigantic problem about

40 million acres of crop land, which on the whole, should perhaps grade slightly better than marginal. This land can be seeded only to food and feed crops for home use, to soil improving crops and erosion preventing crops. The past four years have brought about a shift toward diversified farming by most farmers in position to make such a change, and in many cases suggested replacement crops are either unneeded or impossible from the standpoint of cash outlay. The slogan, "More Cotton on Fewer Acres" which was sponsored a few years ago by practically every agricultural worker, has increased in popularity with the years. Most farmers have learned that if they can grow 5 bales of cotton on 5 acres of land by applying the same principles, they can grow 20 bales of cotton on 20 acres of land. In other words, stepped up efficiency increased acreage. The same idea applies to all crops and this, coupled with a weakened foreign demand, has brought about the problems with which we are dealing today.

Farmers of the South have responded wonderfully well to each of the commodity campaigns offered to date. In the light of the individualistic tendency of farmers, this action may at first seem strange, but if sympathy toward years of extension efforts, plus governmental financial backing, could not sway the farmer, then there would be little hope of every having concerted action on the part of the agricultural class. Of course, there is no way of evading perhaps the most important issue, that the relief program was timely. Farmers had failed in the last four years to return profits on commodities that had never before caused any alarm concerning price or production. Farm lands and personal properties were being forfeited at unheard of rates. The politician's congratulatory phrase of "Farm Freedom, Fresh Air, and Beautiful Sunsets," would have netted eggs in most instances instead of votes. So the farmer was ready for any change suggested, since he felt none could be worse than the plan being followed at that particular time.

We come now to the question, granting that the 1933 programs have been a success, what will be the trend of the agricultural future when the emergency program and funds have been recalled? Can we instill in the farmer during three years of paid cooperation a spirit strong enough to carry on of its own accord and for its own collective good? If so, then greater good will have been accomplished than the majority think. If this is not accomplished, then some similar means must be established to prevent a recurrence of the situation from which we are trying to lift ourselves at present. Agricultural subsidies cannot continue

forever. But can forced cooperation ever reach a goal satisfactory to everyone, and at the same time accomplish the end desired? Perhaps a continuation of elective cooperation without pay and with penalties for the non-cooperator will be the basis for a program designed to follow the one now in force.

What will be the status of agricultural economics if and when the Agricultural Adjustment Administration leaves the field? Farmers will of necessity know more concerning the real business of their farms than ever before. More direct knowledge of production figures and cost will be known than has been available for extension and state workers, heretofore. After the experience of the past and that sure to come, farmers generally should better understand why certain information is necessary and should cooperate more fully in furnishing this information in order that economic progress may not be retarded. They will have learned well the lesson, that cooperation is possible and does pay and that their own individual plan is not always the best.

ECONOMICS EXTENSION AND THE AGRICULTURAL ADJUSTMENT ADMINISTRATION[1]

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May I digress for a moment to a brief consideration of the effect of these new and enlarged adjustment and credit programs on economics extension work in general? I do this, of course, for the reason that farm management and marketing or farm management and outlook can not, or should not, be considered entirely separately. No one in economics extension work, as far as I know, questions the greatly enlarged opportunities for the dissemination of economic information and other aids to farmers in planning afforded through these new developments. Not only does it represent a broadening in scope of activities but it means the reaching of hundreds of thousands of farmers where tens of thousands were reached before.

In considering adjustments in economic extension programs we must allow for and continue to carry those fundamental projects in present economic extension programs that supplement or accelerate the effectiveness of the new adjustment programs. The new programs are economics the same as the old. The new programs are for the purpose of bringing about needed adjustments and to provide the necessary machinery.

Projects dealing with outlook information, types-and systems-of-farming material, farm and enterprise accounts, and county agent conferences on economic information are more important than ever. Similarly marketing projects as to the time most profitable to sell products, the agencies best suited to handle products, the preparation of produce for market, and methods of assembling, grading, packing, and transportation are more needed than ever. Those phases, however, dealing with outlook and marketing are to be handled by Mr. Wood and Dr. Dickey in this discussion.

The new developments in production control programs in the Agricultural Adjustment Administration and in establishing a farm credit program by the Farm Credit Administration both involve considerable adjustment or expansion in our farm management extension programs. The production control programs call for the better preparation and wider dissemination of eco-

[1] This paper was read at the Twenty-fourth Annual Meeting of the American Farm Economic Association, Philadelphia, December 28, 1933.

nomic background information. They also call for aid in formulating plans and methods for carrying out the immediate programs, and in developing and carrying out follow-up educational programs. It is especially important in outlining and projecting the follow-up educational programs that both the farm management and marketing aspects be included.

Another important consideration in these control programs is that of farm records and accounts. Requirements of the various Agricultural Adjustment Administration production control plans and of the Farm Credit Administration statements of owned property and indebtedness call for more accurate farm records. This means the inclusion of the farm account project in every county extension program and with a much larger group of farmers than heretofore ever thought of. Quite naturally some standardization on account forms will be essential in making the information most useful. The job of supplying forms and of helping farmers in keeping accounts will have to be greatly expanded.

Dr. Vaughan is now preparing a simple account book in cooperation with division leaders of the Agricultural Adjustment Administration and the Farm Credit Administration. This will be published and available to farmers cooperating in the various programs. It is designed as an aid to the farmers in keeping the information required. It is also being developed in cooperation with the farm management specialists in the states in order that it will supplement rather than duplicate their state record projects and programs.

In the farm credit program large possibilities are afforded in the expansion of farm management extension work through the credit associations being organized throughout the country. The cost of credit represents a large item of expense and present conditions are requiring much refinancing of indebtedness and the providing of working capital for farm operations. The new national farm credit program, which is especially adapted to the needs of agriculture, demands an enlarged educational program for showing farmers how to make more profitable use of all types of credit. The keeping by more farmers of such records on the individual farm as will indicate how credit can be most profitably used must be encouraged.

Farm management is the one project in the extension program that is organized and projected from the point of view of the farm business as a unit. The adjustment programs are more and more being developed from this point of view. More considera-

tion of the effect of various programs on the farm business as a whole will undoubtedly be given in the development of future county extension programs. If, however, in future extension programs more attention is to be given to farm planning and adjustments, then it is logical to conclude that much more attention must be given to helping farmers keep and interpret the facts needed on which to base a program.

This increased stress on the farmers' economic problems means one of two things in extension work. Either we must have a greatly enlarged economic staff to handle the programs or lean more heavily on the commodity specialists to handle certain phases of farm planning and adjustments. I see no hope in present extension budgets for more than a moderate expansion of economic specialists. Observation of the programs of the more outstanding commodity specialists leads me to feel that the trend will be more toward having the various commodity specialists taking a larger part in future adjustment programs. We may be closely approaching the time when every specialist will devote at least 25 per cent of his time to accounts and other economic background facts for his particular field or commodity. Enough commodity specialists are already developing their programs in this direction to demonstrate that this course is practical. This adjustment, plus a farm management specialist for every 20 to 25 counties, could greatly enlarge the emphasis in extension programs on adjustments.

Economics extension must continue as in the past to be based on a background of facts. We must, therefore, continue close cooperation with federal and state research workers in economics in order always to carry to farmers the latest findings and also to make available to research workers the viewpoints of the large number of farmers contacted, both as to problems encountered and kind of facts needed. Much more research on economic problems must be encouraged in many states. The additional requirements and incentives for farmers to keep farm records should enable research workers to obtain much additional farm management material and give to commodity specialists a sounder background for their extension programs.

This leads me to the last suggestion, which is in regard to personnel in the Economics Division of the Federal Extension Service to handle more adequately educational phases of these immediate and follow-up programs.

It is generally recognized that the educational programs of the Agricultural Adjustment Administration and the Farm

Credit Administration will be carried out largely through the state agricultural extension services. It will, therefore, be the policy of the Federal Extension Service to establish sufficient economic personnel to maintain close contact with the important sections of the Agricultural Adjustment Administration and the Farm Credit Administration in order at all times to be familiar with the preparation and intent of the programs of these different sections. This personnel would be responsible, working with the different divisions, for the organization and direction of the campaigns and the educational follow-up work conducted in cooperation with the state extension services.

Dr. L. M. Vaughan will handle the work in the western states, Dr. J. A. Dickey, the southern states, Dr. R. B. Corbett, the eastern states, and an announcement as to who will work in the north central states should be made soon, the idea being that these men will represent the Extension Service in various production control or marketing agreement programs in these areas and their services will be supplemented by additional help from the different divisions of the Agricultural Adjustment Administration in inaugurating and carrying out special programs. Mr. A. E. Mercker's work with the Interstate Early Potato Committee in Florida, South Carolina, North Carolina, Virginia and Maryland is extending cooperation and service, in so far as possible, to a number of other states. Mr. James K. Wallace's work on livestock grades and standards will be continued and expanded in so far as possible. Much greater emphasis will also be placed on economics extension projects with farm young people and Mr. Eugene Merritt will handle this. Contacts and work in the states will be handled, as previously, through the extension directors and the extension economists.

For work on farm credit, two men are being jointly employed by the Farm Credit Adminitration and the Extension Service to develop that program in cooperation with the State extension economists. Dr. C. G. Garman will handle this work in the eastern and southern states and Dr. L. S. Ellis will work in the central and western states.

EXTENSION WORK IN MARKETING IN PERIODS OF PRICE MALADJUSTMENT AND GOVERNMENTAL INTERVENTION[1]

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Extension work in the field of marketing is undertaken to give farmers information by which they may make adjustments that will result in a larger net income. Some of these marketing adjustments can be made by individual farmers and may include changes in farm organization and management as well as changes in marketing practices. However, many marketing adjustments can be made only as a result of group action. For many years through cooperative endeavor farmers have made changes in the methods of marketing farm products by group action. In general, the marketing activities of the Agricultural Adjustment Administration constitute another means of group action, the aim of which is to make such changes in the marketing system and practices as will result in higher prices to producers.

If it is agreed that the purpose of extension work in marketing is to disseminate information which will be used by farmers as a basis for changes in marketing methods and practices, then the first task is to obtain the essential facts and the next step is to present these facts to farmers and to farm leaders. At one time, most of the marketing functions may be performed by business corporations; at another time, by cooperative associations; and at another time by governmental agencies. The job of the extension specialist in marketing continues to be educational, regardless of the agencies employed, and the ultimate purpose of his work is to "help farmers make more money."

During periods of major price changes, farmers are faced with particular problems of great significance. Farm prices fluctuate violently and the fluctuations are far out of proportion to changes in the supply of and demand for particular farm products. In periods of declining prices, costs of distribution remain high and decline slowly. Farm prices drop drastically because the farm price is the retail price minus the cost of distribution.

With knowledge of this fundamental relationship of prices, many farmers change their methods of marketing so as to obtain some of the relatively high costs of distribution. Evidence of

[1] This paper was read at the Twenty-fourth Annual Meeting of the American Farm Economic Association, Philadelphia, December 28, 1933.

the recognition of this maladjustment of prices by farmers is general. Direct shipment to consumers and house to house delivery of eggs, poultry, vegetables, and fruit, has been increasing rapidly. The phenomenal increase in the number of producer-distributors of fluid milk is widespread, in spite of a long-time trend toward a concentration and consolidation of milk distribution.

Many producers who began retailing milk several years ago have profited by the change in the method of marketing. Those who failed to make the change early in the period of falling prices and who make a considerable investment in a milk plant and equipment as prices again become adjusted may gain little or may even sustain a loss by the change.

The retailing of milk by producers, who usually sell below the market price in order to establish a route, tends to lower the price structure in the market and this in turn tends to force a reduction in distribution costs. The inefficiency and economic waste that results from temporary changes in the system of marketing caused by a major change in the price level may be overcome, in the course of time, but the immediate loss is large. However, from the viewpoint of the individual farmer, he does whatever he can to increase his income or decrease his loss in order to save his farm and provide for his family.

The marketing of fluid milk in areas of concentrated population provides a good illustration of a complex marketing problem and the divergence of interests between individual producers and the entire group in a milk shed. In the New York milk shed, an area including the state of New York, northern Pennsylvania and New Jersey, and a part of Vermont, Massachusetts, and Connecticut, the purchasing power of dairy cows was the highest on record in 1929, as prices generally started to decline and business receded. In response to high prices for dairy cows, dairymen raised more heifer calves each year from 1925 to 1929. This increase in the number of heifers raised was the normal response to the very regular "dairy cow cycle." The result, however, is an increasing number of dairy cows at a time when consumers are less able to buy than at any time for many years.

What can be done to correct the situation? To raise less heifers now will bring no immediate relief. To urge the culling of cows at a time when prices of cull cows are exceedingly low and every dairyman needs all the income he can get to meet cash expenses would have meagre response. To promote an increase in milk consumption, even though it were in the interest of public health,

would draw still further attention to the inability of unemployed persons to increase their purchases of dairy products.

Under such conditions various plans are sure to be offered. Some urge plans which are unequitable and difficult or impossible to enforce, such as "all dairymen kill one or two cows," or "*every* dairyman keep a *can* of milk at home and use it on the farm." Dairy farming is a biological industry. Several years are required to get a prospective heifer calf into full production. The dairy industry cannot be quickly and easily expanded or contracted. A sufficient quantity of milk must be available to provide for the needs of consumers at all times. Any program for reducing milk production to obtain immediate improvement for the producer of fluid milk should also make provision for market requirements eight to ten years hence.

New York dairymen have recently reduced milk production per cow by about 200 pounds per year. During the previous period of low returns to dairymen (1922-1925) the annual milk production per cow averaged about 5100 pounds. From 1928 to 1931, the average production was about 5500 pounds per year. It is estimated that the average production for 1933 will be about 5300 pounds. The decrease appears to be due chiefly to the decrease in concentrates fed to dairy cows during the recent months of extremely low farm prices for milk. With any appreciable improvement in prices paid to producers, the production per cow may be expected to increase.

During the first eight months of 1933, the per capita consumption of milk and cream in the New York metropolitan market was about 10 per cent less than for the same period in 1929. The failure of per capita consumption to increase for three or four years is in direct contrast to the almost unbroken increase that had been going on since the beginning of the century. In 1900, the per capita consumption of milk and the milk equivalent of cream was about 0.7 pint; it increased to about 1.3 pints in 1929, and has since decreased to about the 1920 level of 1 pint per person. Formerly, it was not difficult to estimate rather accurately the increasing requirements of the market from year to year. Now, new and uncertain factors must be considered. How soon will the unemployed get back to work? How long before consumers will again purchase the amount of milk and cream they used in 1929 and when will per capita consumption again resume the upward trend?

Various methods of marketing milk have been used to deal with similar situations. Some of the "marketing plans" differ dis-

tinctly in the kind of adjustments obtained and in the place at which adjustments occur. A marketing plan that limits the amount of milk to be delivered by producers to the fluid requirements of the market results in decreasing the milk plant volume, and thus increasing the cost per unit. It may also result in an effort on the part of producers to find a market outlet for the growing surplus left on their hands at prices which tend to demoralize the market.

A plan which blends the returns for all milk delivered by producers results in a declining price to producers as fluid milk sales decrease and more milk is sold in the form of butter and cheese, even though the market price for fluid milk and for butter and cheese remain the same. On the other hand, a plan which provides one price to the producer for the proportion of his milk which can be sold as fluid milk and fluid cream, and another price for the milk used for manufacturing purposes clearly indicates the differences in market value. It also leaves the way open for each producer to decide whether or not he will continue to produce milk to be sold for manufacturing purposes. He may decide to use more milk on the farm, or he may decide to decrease milk production to the approximate amount that can be sold for fluid consumption.

Some milk marketing plans tend to press all distributors and all producers into the same mold which results in great inefficiency. Some plans subsidize the marginal producer and marginal distributor, thus postponing the time of final adjustment. The soundest marketing plan is one which provides for the group action and regulation needed in the milk business because of the public health and monopolistic aspects of the business, and still leaves the way open for increased efficiency on the part of both producers and distributors.

These brief remarks concerning milk marketing may indicate the job before the extension specialist in an area producing fluid milk. The effectiveness of a marketing plan depends very largely upon the knowledge and experience of the farmers who conceive the plan, those who are responsible for the administration of the plan, and those who participate in the plan. The purpose of marketing extension is to provide the facts which will serve as a basis for the decisions farmers will make, individually and collectively, in attempting to solve their marketing problems.

A very different type of marketing problem, and one which also has become of more general concern with a declining price level, has appeared in the more densely populated areas in con-

nection with the marketing of farm produce by the side of the road. The rapid development of the roadside market business is another evidence of the farmer's effort to avoid the relatively high costs of distribution. As the farmer's share of the retail price decreased, a few well located and enterprising farmers began selling fresh fruits, vegetables, poultry and eggs directly to consumers.

Soon requests for information concerning the successful operation of roadside markets were being received by county agricultural agents and the colleges of agriculture. How complete must be the line of produce for the successful operation of a roadside market? Should a market be located on a hard road? Near a large city? Must such a market be open throughout the season? How much should be invested in the stand? What hours should it be kept open? What are the costs and what prospects of obtaining a profit?

Since relatively little information was available, the first job was to determine the factors for success with roadside markets. A study of the costs for 91 roadside markets showed that the average annual sales were about $3100, about 70 per cent of which were farm products. Labor costs were 67 per cent of the total costs of operation, and markets with small volume showed a very low return for labor. In general, the most successful markets sold a rather wide variety of farm products, although some farmers successfully marketed fruit at the roadside as the fruit was being harvested.

The average investment in roadside market stands was $292. Many of the successful markets had a small investment in a stand. The most important factor was the amount of traffic passing the market. The sales at markets where more than 6,000 vehicles passed during one day in August averaged more than $5,200 a year, compared with sales of about $1,800 at markets where less than 2,000 vehicles passed in one day. Information of this kind together with facts concerning the size and type of stand, kind and amount of display, advertising, parking area, signs, and price policies helped to answer numerous questions and made the experience of successful operators of roadside markets available to other farmers who were trying to adjust their marketing program because of the serious maladjustment of prices. Such marketing adjustments are made by individual farmers and are very largely outside of the scope of either state or federal aid or regulation, although in the Northeast at least some

of these operators of roadside markets have formed cooperative associations for the purpose of standardizing sales policies and for advertising.

Another type of extension work in marketing is teaching the fundamentals of cooperative business management.[2] During the recent period of declining prices, the credit policy of cooperative purchasing associations has been of paramount importance in their successful operation. Cooperative associations operating on a strictly cash basis in selling feed, fertilizer, seed, and spray materials to farmers have avoided heavy credit losses, and, in many cases, have increased the physical volume of their sales. With some other associations, mounting credit sales, reduction of working capital, inability to take advantage of cash discounts, and the resulting necessity of a wider gross margin has led to insolvency and liquidation.

The carrying of unnecessarily large inventories during the decline in prices is another important cause of losses. In so far as the marketing specialist was effective in teaching such fundamentals of business management, he was instrumental in increasing the income of farmers and thus in carrying out the purpose of his task.

In connection with this aspect of the marketing extension program, the immediate adjustment for the marketing specialist appears to be with the Bank for Cooperatives operating in the district. The proper contact between the officers of the bank and economic specialists in marketing should result in particularly effective work in the field of business and financial management for cooperative associations.

This paper is not an attempt to set forth an extension program in marketing. A brief consideration has been given to the relationship of a declining price level to the marketing problems in only three fields. These may serve as a basis for analysing the problems in other fields and indicate that the job of the marketing specialist is not changed materially with the new government agencies established to assist agriculture. Extension work in marketing is done to provide farmers with economic facts that will serve as a basis for decisions which in turn will increase their labor income. Some of these decisions can be made by individual farmers and immediately put into practice. Other decisions must be made by groups of farmers or by farm leaders,

[2] "Extension in Cooperative Business Management (Small Cooperative Organizations)"—M. C. Bond, Cornell University, *Journal of Farm Economics*, October, 1933, pp. 677-684.

but even in the case of group action the most satisfactory progress will be made if the farmers who participate in the plan or who are members of the cooperative have the facts and understand the reasons for the action that is taken and the plan followed. The marketing specialist will cooperate with the Agricultural Adjustment Administration, the Farm Credit Administration, cooperative associations, and other agencies in an effort to carry out the purpose of extension work in marketing.

THE COURSE OF OUTLOOK EXTENSION[1]

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An attempt at this juncture to envisage the course of outlook extension requires some review of the development of production adjustment programs, some interpretations of their characteristics and effects, and some assumptions as to the direction in which the agricultural adjustment programs will evolve.

The Development of Production Adjustment Programs

Early in its experience of disseminating the agricultural outlook and of bringing about direction and timeliness to individual farm adjustments through that informative medium where hitherto production shifts had been largely haphazard, outlook extension sensed and encountered the underlying forces which established definite limitations to the objectives. Operating under a laissez faire order it encountered new restrictions which developed just as its influence had attained nation-wide weight. Internal and external forces combined to make some liquidation of our agriculture necessary and at the same time to impose on the individual farmer the compulsion to produce to capacity. Thus the objective of increasing the total exchange value of the aggregate product of agriculture could not be fully attained. Under such conditions individual production adjustments in time tended to become internal shifts from one product to another with an over-run more or less continuously present to depress farm prices. In this situation the final adjusting force is the slow process of marginal elimination.

But a national economic crisis demanding immediate and positive action has brought new forces to bear under the agricultural adjustment act. That section of this act which deals specifically with production adjustments meets the situation just outlined by calling for immediate, nation-wide cooperation in reducing total physical farm production to the end that its total exchange value may be increased.

As this sudden transition from a laissez faire to a controlled economy not only greatly accelerates the process of adjusting farm production but otherwise affects the technique of outlook extension, it is to the point to inquire more closely into the nature of this new project.

[1] This paper was read at the Twenty-fourth Annual Meeting of the American Farm Economic Association, Philadelphia, December 28, 1933.

The Agricultural Adjustment Program

The adjustment programs thus far initiated seek immediate, arbitrary and horizontal reductions fixed by the respective price requirements of the products involved. Such contractions will unquestionably disturb enterprise relationships within the internal organization of farm units at a cost in physical efficiency. This lack of flexibility may be regarded as a temporary restriction occasioned possibly by the pressure for immediate results. From another viewpoint, it may be interpreted as a temporary means of preserving a regional status quo in the distribution of enterprises. Under the old order of voluntary and selective internal farm adjustments the net alternative management returns of the farm unit rather than an independent commodity price objective was given greatest consideration, and a desirable flexibility attended production adjustments. Some refinement of the new program which would inject some degree of flexibility would not necessarily disturb the allotment principle.

As the foregoing comparisons suggest radical disruption of the orthodox philosophy and technique of outlook extension, the directions in which the adjustment program may evolve should be duly considered before conclusions are drawn.

Evolution of the Agricultural Adjustment Program

As one adjustment begets another and the circle of adjustments becomes more or less all inclusive, it is reasonable to expect that this program will evolve into another form. A coordinated program should supersede the commodity attack. Flexibility and selectivity should appear. Adjustments based on a farm unit technique should tend to concentrate the production of each farm commodity within its most favorable adaptation and to eliminate it from its least favorable environment. Exchangability of allotments and revision of quotas can be made to contribute to that end.

The Course of Outlook Extension

During its relatively short period of activity outlook extension has performed an invaluable service in preparing the way for a program of controlled production. It has brought about a broad understanding of price alternatives particularly as applied to adjustment between enterprises of the individual farm. It has built up an army of farmer leaders of economic vision who are

destined to take an important part in the undertaking of bringing about an immediate control of agricultural production. The laborious accumulation of regionalized, localized and internal farm organization data under the old order will continue to serve their purposes under the new order. It is not difficult, therefore, to envisage an unprecedented organization of farmers trained by repeated adjustment campaigns as an essential constituent of outlook extension active in organization functions as well as in assembling a wealth of statistical data hitherto only fractionally available.

Passing suddenly from an expanding to a contracting agriculture, from a laissez faire to a controlled production and from a long established to an experimental philosophy, the course of outlook extension is itself in process of readjustment as to pace, scope, and direction. Outlook extension must prove itself adaptable to changes in viewpoint and emphasis. Quite aside from the dimensions of the task before it and from the manner in which its task has been concentrated by an accelerated adjustment, the greatest responsibility of outlook extension will be that of interpreting developments and reactions in the field and reflecting them in such a manner as to contribute materially to reconstructing and shaping of production control measures so that they may more effectively accomplish their objectives.

The Outlook Extension Program

In the light of these brief considerations, it is evident that outlook extension is to have a vital part in the agricultural adjustment program in its promotion, organization and administration and especially in its evolution; also, that the procedure it has developed and employed in bringing about farm production adjustments in the past have direct and essential applications. The changes in pace and in principle which have suddenly appeared in the adjustment process give added weight to general, local and farm economic information. Each must serve in measuring the changes which result, in interpreting the new situations and in reflecting reactions upon which a permanent adjustment procedure must be constructed. Obviously, the immense body of closely cooperating producers drawn into the adjustment process represents a greatly expanded and organized source of research material and a broadened medium of dissemination.

DISCUSSION BY D. W. WATKINS
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As tempting as it is to speculate on the probable trend of economic planning during the next several years, time forbids more than a word. We may, perhaps, take it for granted that as time passes the features of our social control experiments, which are mainly for purposes of giving relief to those in distress, will gradually be supplanted by other features, probably based on additional legislation, that will take into consideration the proper economic relationships between groups, both rural and urban, within the nation. At the same time, such features will necessarily take into consideration the extent to which this country is to become self-contained in a world economy. It would seem that the alternative to such a general trend in economic planning would be that we should gradually subside into our previous state, wherein each special interest or bloc exerted such influence as it could, the sum total of all such effective influences composing at any given moment, the national policy. History is not likely to repeat itself along such lines; at least not until there has been a larger opportunity for experimenting with the philosophy of a planned economy under American conditions.

Assuming, then, that this is to be the trend along which economic planning is to develop, outlook extension work will be deeply colored by the practical considerations involved in the field administration of such plans as are promulgated. At the outlook meetings economists and extension agents will doubtless disseminate outlook information as an incident to aiding in the execution of whatever agricultural adjustment program happens to be under way. It is significant that at the national outlook conference in November, outlook workers from twenty-four states reported that the outlook meetings to be held this year would be combined with meetings at which both outlook and agricultural adjustment organization work would be discussed.

Heretofore, we have disseminated outlook information as widely as possible, and farmers took it or left it, acting in a highly individualistic manner, largely without regard to what any other farmer would do. Now, however, farmers will be called upon to conform to a plan in which each individual farm unit has a share. This will be the primary consideration under an adjustment plan. As a secondary matter, each individual farmer will still use outlook information, applying it as best he may to the enterprises on the farm, after the planned adjustments have been made. Each farm will, under the new order, not constitute a separate independent unit but will be a cell in an organ which itself is a part of an organism.

It will require time to make this viewpoint effective. In the meantime, it is necessary to carry through, successfully, the adjustment plans that are proposed through the Agricultural Adjustment Administration. If this is not done, the whole idea of a planned economy may be given a serious backset. Extension workers will, therefore, go beyond the mere dissemination of outlook information and will assist in the execution of huge programs that are based fundamentally on the outlook. Thus, to the outlook work of the past, disseminated as educational material for the guidance of farmers acting as individuals is to be added the job of aiding in the practical organization of growers for common action.

As Mr. Wood points out in his paper, extension workers will reflect the reactions of farmers to various features of the plans as they are put into effect. Those who are responsible for making adjustment plans will naturally consider such reactions along with economic data in the making of plans.

Finally, it is certain that as outlook information is to be the foundation of the adjustment plans themselves, there will be no diminution in the importance of outlook work. On the contrary, it will become more imperative that data used be more reliable than they have been in the past because a mistake based on insufficient data would be multiplied through an adjustment program. This refers, of course, mainly to the functions of research workers in the preparation of outlook information. However, the importance of securing adequate data is doubtless fully recognized by the responsible research agencies, and extension workers may, perhaps, take it for granted that the outlook information available in the future will be of an even higher order of excellence than that of the past. One important factor that research workers will have to deal with, which is more or less uncertain, at least until more experience is obtained, is the probable response of farmers to any particular adjustment program, in which participation is voluntary on the part of farmers. Experience is lacking on farmer reaction to particular plans, and as successive plans are likely to be changed materially from year to year, it may be very difficult to estimate this factor in any given year.

NOTES

SOME ECONOMIC EFFECTS OF THE BACK-TO-THE-LAND MOVEMENT IN MARGINAL FARMING AREAS OF SOUTHERN INDIANA

A brief and preliminary survey has been made of the extent and effects of the back-to-the-land movement in two selected townships in the marginal farming region of southern Indiana. Because of limited funds and time the study was restricted to two townships. The purpose of the study was to determine the number of people returning to these two townships, their success in attempting to establish self-sufficiency, and some of the economic effects of this population movement upon the locality into which they moved. The survey has served as a basis for formulating plans and methods of procedure for a more comprehensive study now under consideration.

A list of the newcomers was compiled from assessors' records and checked by the township trustee, township assessor, and other residents of the township for accuracy and completeness. The newcoming families were then visited to obtain information concerning their past history and present success in attempting to establish themselves on the land.

The corrected list of people moving into the township in the 3½ years was then checked with assessors' and treasurers' records to determine the amount of new taxable wealth brought into the township by newcomers. Township poor relief records and Red Cross relief reports were also checked against the same list to determine the number of newcomers receiving charity and the amount received.

The two townships studied were selected because it was known that they had experienced a decided increase in population within recent years. The population in both townships had decreased more than a third from 1910 to 1930, as abandonment of the poorer land was taking place. Both townships are burdened with a large proportion of land submarginal for farming. A low proportion of taxable wealth to population has existed in both townships since the depletion of the timber resources near the beginning of this century.

What probably has been the most extreme landward movement in the state occurred in one of these townships located about 35 miles south of Indianapolis. It was found that 82 new families comprising a total of 337 people had moved into this township in the 3½-year period from January, 1930, to June 30, 1933, and were still residing there on the latter date. This number was equal to 36 per cent of the 1930 census population in this township. Twenty-two per cent of these people had moved in during 1930, 36 per cent in 1931, 32 per cent in 1932, and 10 per cent during the first half of 1933.

Eighty per cent of the newcomers moved directly from cities into the township. Only 37 per cent had ever lived in this county before, but 76 per cent had previous farm experience. Forty-four per cent were attempting to buy the land on which they had moved. Fifty-three per cent of the newcoming families were occupying houses which had been abandoned and vacant for a year or longer. One-third of these houses had not been occupied since 1925.

In 1932 there were 38 farms in this township operated by newcomers

who had arrived early enough that year to put out crops or who had moved in during the previous two years. The average gross income per farm on these farms was $118. Of this amount, outside work for two weeks brought in $18 for the year. A total of only 16 acres of crops was grown per farm, while the average for all farms in the township for the same year was only 19 acres. The scarcity of even moderately productive soil is the chief limiting factor to larger crop acreages, although the scarcity of horses and equipment was an immediate handicap to expanding crop production on the poor unproductive land. There were only 52 horses on 22 of the farms operated by newcomers; while the other 16 farms had no horses.

One-half of the total township poor relief and 28 per cent of the total Red Cross aid given in 1932 and the first half of 1933 went to the newcoming families which made up approximately one-third of the population. The total amount of township poor relief and Red Cross aid going to newcomers in the year and one-half ending June, 1933, amounted to $1,011. Taxes levied on wealth brought in by the same people amounted to only $165 for the same period. In addition to doubling the local poor relief burden on a township already overburdened with local taxes, the school enrollment was increased by 78 pupils or 33 per cent of the total school enrollment for the township. The total increase in taxable wealth brought in by newcomers was less than one per cent of the taxable wealth of the township.

Data for both townships studied lead to the same conclusions although the landward movement was not so extreme in the second township. In the latter township the number of newcomers amounted to 14 per cent of the 1930 population compared with 36 per cent in the first township.

It is evident that the community as it previously existed in this township has not profited by the return of more people to land once abandoned. The burden of poor relief has been shifted from one community to another through this movement of people back to the land. It should be recognized that these people are attempting to establish a self-sufficing existence for themselves on land which was abandoned by others who failed even in more prosperous times. They are not self-sufficing now, even though their limited capital may be earning a greater share of their living in their present location than it could if they had remained unemployed in cities. A more permanent adjustment between urban and rural population might have been expected if these people could have been directed to better land located nearer part-time industrial employment.

This brief study indicates that an undesirable burden has been placed upon marginal farm areas by the landward drift of persons attempting to establish a self-sufficient existence on poor land.

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SIZE OF FARM AND THE BUSINESS CYCLE

For many years it has been almost axiomatic in farm management studies that farm income tends to increase with size of the farm. Textbook statements are somewhat guarded in that they restrict the size

of the farm to reasonable limits for the particular type of farming being considered and point out the greater risk of the larger business. In books and bulletins, the authors, having sounded this warning of risk, proceed to show the advantages of volume of business. The discussion is usually convincing and the risk side is minimized in the reader's mind if not in that of the author.

Various measures of size have been used—total acres, crop acres, total investment, working capital, number of milk cows, work units and others. Indexes of size including several measures have also been suggested and used to a limited extent. The earlier comparisons were usually on the basis of labor income but later ones have been based on this and other measures of income such as operator's earnings, net farm income, labor and management wage, and returns on investment. The use of these various measures of size and income generally have pointed to the same tendency of income to increase with size of farm when groups of farms are considered, although different methods frequently show different results for the individual business.

In this discussion a comparison has been made of the effect of size of farm on income for 1931, a year of drastic price declines between the inventory periods of January 1, 1931 and January 1, 1932, and for 1933, a year of rising prices between inventory periods. "Net farm income" was used even though its weakness as a measure of income to be related to size is recognized. The main weakness is due to the fact that it may permit tenure and quantity of capital invested to affect the results. "Operator's earnings" would have been preferable but the 1931 data were not in sufficient detail for its calculation. Using such checks as were available it does not appear that this defect should invalidate the comparison.

In 1930 reports in some cases, and especially the 1931 reports, on groups of farms widely distributed throughout the states of the central west, showed almost the reverse of the familiar tendency of income to increase with size of farm. The figures in Table 1 for a group of farms in north central Kansas may be taken as illustrative of these results. A study of farm management reports from Iowa, Nebraska, Minnesota, Illinois, Wisconsin, and Michigan show the same change in tendency for all states but not for all groups of farms. The Wisconsin report stresses the larger volume of business of the high income group as shown by gross receipts. Volume of business, however, when measured by gross income, may be partly due to efficiency of enterprises, not all of which comes from size of business. The average acreages of the groups are not given but other data indicate the low income group had the greater acreage.

Considerable diversity of method was used in calculating income, so the results of the various reports are not directly comparable. The net farm income figure used in the Iowa report is similar to net farm income used in Table 1. This report from Iowa[1] has the following statement regarding the effect of size of farm:

"With a total investment of less than $30,000 and only 21 per cent of this in working capital on the more profitable farms, compared with $65,000 and 26 per cent on

[1] Farm Business Association Report of 108 farms in Butler, Franklin, Grundy, and Hardin counties, 1931. Mimeographed. Iowa State College of Agriculture and United States Department of Agriculture, cooperating.

the less profitable group, large size of business proved a definitely unfavorable factor in relation to management return in 1931. This point is re-emphasized in a comparison of acreage and livestock numbers which are other measures of size. The least profitable farms average twice the acreage, more than twice the number of litters of pigs, nearly three times the number of cattle and over five times the number of sheep found on the more profitable farms. During years of fairly steady prices or of rising prices, higher profits are usually associated with larger businesses and lower profits with smaller businesses. However, in times of heavy price declines, resulting in inventory price shrinks, larger businesses are more likely to show the greater losses.''

TABLE 1. THE RELATION OF SIZE OF FARM TO NET FARM INCOME IN YEARS OF FALLING AND RISING PRICES. THESE FARMS ARE LOCATED IN NORTH CENTRAL KANSAS

Year	Size group crop acres	Number of farms	Average crop acres per farm	Net farm income[a]	Income adjusted for inventory change in livestock, feed, and supplies
1931	Less than 100	17	80	$ 16	−$420
	100–199	53	145	−335	−370
	200–299	16	240	−805	−448
	300 or more	9	395	−939	−543
	All farms	95	175	−409	−409
1933	Less than 100	23	78	$769	$815
	100–199	60	143	1210	1296
	200–299	21	249	1604	1383
	300 or more	12	386	1723	1589
	All farms	116	172	1247	1247

[a] Net farm income was calculated by adding inventory increases to and deducting inventory decreases from the net cash income plus the value of food and fuel used in the house. Interest on borrowed capital was included as a cash expense.

Most of these reports mention the depressing effect of inventory losses. For the greater part these losses were due to price changes. The drastic decline of Kansas farm prices for representative commodities during 1931 is shown in Table 2. These declines range from 5 to 52 per cent.

In the last column of Table 1, the net farm income figures have been adjusted to show what the effect of size would have been if the inventory changes of livestock, feed and supplies had been the same in each group. The advantage of the small farm is much less impressive.

In times of price decline the larger farms have additional difficulties. Many expenses are hard to reduce in proportion to decreased gross income. This is especially true of so-called fixed charges such as interest, taxes, cash rent, and insurance and applies to some extent to other overhead charges. These difficulties with inventories and fixed charges are, for the time being, not controllable factors. The inventory changes in this case are due largely to external factors while the fixed charges are the result of contractual relations entered upon at a previous time. Management problems in general are also more difficult and mistakes show up with greater force on the larger farms.

In 1933 the relation of size of farm to net farm income again shows the familiar tendency of income to increase as size increases. The prices of most farm products increased during the year as shown in Table 2. The inventory changes, therefore, overemphasize the tendency in so far

as the usual advantages claimed for volume of business alone is concerned. However, an adjustment for the effect of inventory change still leaves a considerable margin in favor of the larger farms. This margin must be due in part to some of the advantages of size such as the more efficient use of man labor, horse work and machinery, better utilization of land, and a better opportunity for good buying and marketing practices.

When the price level fluctuates within a wide range the relation of various factors with income may be affected or obscured by other factors which are functions of these fluctuations. If this is true, as these data indicate, the importance of a closer study of the factors affecting farm income in relation to the uptrend and downtrend of the price cycle becomes clear.

TABLE 2. KANSAS FARM PRICES OF REPRESENTATIVE COMMODITIES, ILLUSTRATING THE DRASTIC CHANGE AT INVENTORY TIME FOR THE YEARS 1931 AND 1933

Commodity		1931			1933		
		Jan. 1 1931	Jan. 1 1932	Per cent change	Jan. 1 1933	Jan. 1 1934	Per cent change
Wheat	per bu.	$0.56	$0.36	−36	$0.28	$0.68	+143
Corn	per bu.	.55	.30	−46	.16	.38	+138
Oats	per bu.	.34	.20	−41	.12	.29	+142
Barley	per bu.	.37	.23	−38	.14	.34	+143
Alfalfa	per ton	12.40	8.00	−36	5.85	7.75	+32
Prairie Hay	per ton	6.60	4.05	−39	3.38	4.08	+21
Horses	per head	42.00	40.00	−5	45.50	59.50	+31
Milk cows	per head	54.50	39.00	−28	27.00	25.00	−8
Beef cattle	per cwt.	7.10	4.75	−33	3.62	3.52	−3
Veal calves	per cwt.	8.05	5.25	−35	3.88	4.05	+4
Hogs	per cwt.	7.15	3.40	−52	2.42	2.80	+16
Chickens	per lb.	.13	.11	−15	.066	.062	−6

Source: Crops and Markets. Prices for Dec. 15, 1930 and Jan. 15, 1931 were averaged to approximate prices for Jan. 1, 1931. The other prices were obtained in a similar manner.

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FACTORS RELATED TO FARM TENANCY IN NORTH CAROLINA

It is a matter of common knowledge that the type of farming carried on in any region has an important influence upon the type of farm teuure. The extent to which this principle holds true in North Carolina has been measured by the use of multiple correlation analysis. In this analysis the following variables were used:

X_0 = Per cent of crop acres harvested operated by tenants
X_1 = Per cent of crop acres harvested in corn
X_2 = Per cent of crop acres harvested in tobacco
X_3 = Per cent of crop acres harvested in cotton
X_4 = Ratio of value of livestock products to crop acres harvested
X_5 = Value of all farm land per acre

The area selected for study embraced all of those counties, except one, having some crop land harvested in both cotton and tobacco in 1929—a total of fifty-seven counties. One county having some cotton and tobacco harvested was not included because of the concentration of dairy and

suburban farming within it. In calculating the various measures and coefficients needed in the analysis the counties were weighted according to the total acres harvested in crops. The large counties, therefore, influenced the results more than the small ones. It should be said here, however, that weighting had practically no influence on the ultimate results obtained. The zero order coefficients obtained are shown in Table 1.

The preliminary multiple correlation of three independent variables, represented by the crop acres harvested in corn, in cotton, and in tobacco, with farm tenancy resulted in a multiple correlation coefficient of .89220,

TABLE 1. ZERO ORDER COEFFICIENTS OF CORRELATION

	X_2 (Tobacco)	X_3 (Cotton)	X_4 (Livestock)	X_5 (Land Values)	X_6 (Tenancy)
X_1 (Corn)	.04004	−.65341	.46936	−.44369	−.63072
X_2 (Tobacco)		−.26925	−.21999	.42079	.48512
X_3 (Cotton)			−.60933	.32794	.51894
X_4 (Livestock)				−.30417	−.67720
X_5 (Land Values)					.72915

showing that a highly significant association exists between the type of farming and the amount of tenancy. In the subsequent analysis, the value per acre of all land in farms and the value of livestock products per crop acre harvested were added, making a total of five independent variables. With these additions a new multiple R of .91959 was obtained. The corrected coefficient of determination ($\overline{R}^2$) proved to be .8427. The following table shows a summary of the results obtained in the final analysis:

TABLE 2. NET RELATIONS BETWEEN FARM TENANCY AND FIVE FACTORS REPRESENTING TYPES OF AGRICULTURE

Independent variables	Partial regression coefficients	Partial beta coefficients	Percentage determination
X_1 (Corn)	−.58766	−.25957	.16372
X_2 (Tobacco)	.50764	.33462	.16233
X_3 (Cotton)	.15290	.15346	.07964
X_4 (Livestock)	−1.78506	−.28905	.19574
X_5 (Land values)	.51837	.33493	.24421
All	—	—	.84464

The next step in this analysis was the calculation of the estimated values of farm tenancy for each county, using the regression coefficients recorded in Table 2. From one point of view, these estimated values of tenancy (per cent of crop land harvested by tenants) may be considered as indexes of the type of agriculture. After all, these estimated values are merely weighted averages of the five factors representing type of agriculture, the weights being partial regression coefficients. Furthermore, by way of definition, it may be said that these estimated values constitute an index which shows the maximum correlation with farm tenancy. The coefficient of correlation of the estimated values with the actual percentages of farm tenancy is mathematically the same as the multiple coefficient of correlation, $R_{0.12345}$.

One conclusion which may be drawn from this analysis, is that any attempts to lower farm tenancy in North Carolina should begin with

attempts to change the type of agriculture. It should be said here, however, that other factors not included in our problem undoubtedly affect farm tenancy; e.g., custom, human differences, laws, etc. It is conceivable, for instance, that by changing our basic laws of property and contract, we could reduce tenancy without changing our type of agriculture. It is conceivable, also, if not very probable, that a reduction in the amount of farm tenancy might result in a change in the type of agriculture. That is, the fact that our laws make tenancy possible, may be a major "cause" of our type of agriculture. All of which goes back to the now well accepted dictum that a correlation between two variables does not prove that "causal" relationships are involved. However, under existing laws of land ownership, the type of agriculture is the major factor determining tenancy.

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THE EFFECT OF CERTAIN ADJUSTMENTS IN STOCKS REPORTS UPON ESTIMATES OF ANNUAL CONSUMPTION OF BURLEY TOBACCO

The need for some refinement in carry-over figures for tobacco has been apparent for some time. Stocks are reported in terms of storage weight whether stemmed or unstemmed and without regard to the fact that these weights are from 10 to 20 per cent less than farm sales weights, due to decreased moisture content. The amounts of tobacco stemmed and not stemmed are reported separately, however.

It has been customary to measure the amount of tobacco consumed or exported annually by subtracting from the total supply at the beginning of the year, the amount remaining on hand at the end of the year. For burley tobacco the 12-month period ending October 1 has been used because the supply on October 1 can be determined more accurately than at any other date. Stocks are reported quarterly, on January 1, April 1, July 1 and October 1. The first two dates usually fall during the marketing season and would necessitate estimating the portion of the crop not yet added to stocks. July 1 is too early for an accurate forecast of the growing crop.

Total supply is calculated by adding the amount of the current crop, in estimated farm sales weight, to the stocks, reported in re-dried and stemmed weights. The carry-over at the end of the year of course is in re-dried and stemmed weights. The difference, therefore, includes losses in weight due to re-drying that portion of the total supply which is made up of the current crop. If a larger proportion of the end stocks are stemmed than of the beginning stocks, this loss also is included. A decrease in the proportion of stocks stemmed tends to lower the disappearance figure.

When calculating the disappearance of tobacco during a period of several years, this practice has resulted in no particular difficulty because disappearance, of necessity, must equal estimated production, except in so far as stocks accumulate. When comparing disappearance from year

to year, however, the lack of adjustment for losses in re-drying and stemming may lead to erroneous conclusions because such losses are greater for large crops than for small ones.

An examination of stocks reports reveals that the proportion of burley tobacco carried over as stemmed leaf or strips has become progressively less since 1912, when stocks data were first available to the public. Three or four years ago the author secured estimates from several tobacco dealers and manufacturers of the average loss of weight in re-drying and

TABLE 1. PRODUCTION, STOCKS, TOTAL SUPPLY AND DISAPPEARANCE OF BURLEY TOBACCO, AS USUALLY EXPRESSED AND ON A GREEN ORDER OR FARM WEIGHT BASIS

(1912 to 1933) (In thousands of pounds)

Year	Production[1]	Usual basis [2]			Farm weight basis			Net Difference in disappearance[4]
		Stocks as reported October 1	Total supply October 1	Disappearance year ended October 1	Adjusted stocks October 1[3]	Adjusted total supply October 1	Disappearance year ended October 1	
1912	196,080	215,307	411,387		273,632	469,712		
1913	176,776	225,199	401,975	186,188	282,377	459,153	187,335	1,147
1914	*250,000*	203,672	453,672	198,303	259,378	509,378	199,775	1,472
1915	*207,000*	249,804	456,804	203,868	316,935	523,935	192,443	−11,425
1916	257,050	199,321	456,371	257,483	251,046	508,096	272,889	15,406
1917	251,520	207,594	459,114	248,777	251,884	503,404	256,212	7,435
1918	*320,000*	190,137	510,137	268,977	233,380	553,380	270,024	1,047
1919	300,348	229,890	530,238	280,247	285,025	585,373	268,355	−11,892
1920	287,716	267,789	555,505	262,449	326,159	613,875	259,214	−3,235
1921	*180,000*	324,351	504,351	231,154	388,737	568,737	225,138	−6,016
1922	*285,000*	280,856	565,856	223,495	334,586	619,586	234,151	10,656
1923	*355,000*	342,885	697,885	222,971	400,214	755 214	219 373	−3,598
1924	295,778	428,332	724,110	269,553	506,996	802,774	248,218	−21,335
1925	277,840	459,087	736,927	265,023	535,106	812,946	267,668	2,645
1926	288,793	466,036	754,829	270,891	541,148	829,941	271,798	907
1927	176,227	451,251	627,478	303,578	526,151	702,378	303,790	212
1928	269,136	347,827	616,963	279,651	415,179	684,315	287,199	7,548
1929	342,213	332,382	674,595	284,581	395,918	738,131	288,397	3,816
1930	357,662	373,032	730,694	301,563	439,337	796,999	298,794	−2,769
1931	455,039	436,802	891,841	293,892	510,782	965,821	286,217	−7,675
1932	313,604	593,433[5]	907,037	298,408	690,769[5]	1,004,373	275,052	−23,356
1933	*380,000*	615,930	995,930	291,107	721,243	1,101,243	283,130	−7,977

[1] U.S.D.A. estimates. Italics indicate our revisions on the basis of local information.
[2] No allowance made for loss of weight in re-drying and stemming.
[3] Allowance made for 10 per cent loss in re-drying and an additional loss of 30 percent in removal of stems
[4] Farm weight disappearance minus usual disappearance.
[5] Eight million pounds added to adjusted stocks to allow for tobacco held over in growers' hands. An equivalent amount, or 6,873,000 pounds, is added to unadjusted stocks to permit direct comparison between the two disappearance figures.

stemming tobacco. In estimating annual consumption or disappearance, all stocks were converted to their unstemmed equivalent but no allowance was made for losses in re-drying. The adjustments which resulted, however, seemed too small to be particularly important.

More recently it has been realized that variations from year to year in the loss of moisture in re-drying is more important than annual variations in the proportion of tobacco stemmed. Further work has been done, therefore, in allowing for these variations when estimating annual disappearance.

To correct for losses in weight due to evaporation and the removal of stems, burley tobacco stocks reported as "stemmed" have been converted

to their unstemmed equivalent and all "unstemmed," re-dried stock then have been converted to a farm sales weight basis. A loss of 10 per cent in re-drying and an additional loss of 30 per cent when stems are removed have served as a basis for these conversions.[1]

Similar corrections might be made by reducing production estimates to a re-dried basis but this would lower the whole scale of disappearance figures and would not allow direct comparisons between production and disappearance which have been possible heretofore.

Several results are obtained by making these adjustments in storage stocks reports.

(1) At least part of the error which has been carried over to the disappearance figure as a result of wide fluctuations in production from year to year is eliminated. From the accompanying table it may be seen that the 1930 crop was about 64 million pounds larger than the usual disappearance for the year ended October 1, 1931. When adjustments for losses in stemming and re-drying are made, however, the disappearance figure is decreased by 7,675,000 pounds, or 2.6 per cent. The 1931 crop was 157 million pounds larger than disappearance during the following year as usually calculated. When adjustments are made for losses in re-drying this excess tobacco the estimated disappearance figure is reduced by 23,356,000 pounds, or 7.8 per cent.

The 1928 crop was less than disappearance by about 15 million pounds. Allowing for this increases the estimated disappearance by 3,816,000 pounds, a change of 1.3 per cent. In 1915 a deficiency of 50 million pounds results in an increase of 15,406,000 pounds, or nearly six per cent, in estimated disappearance. The short crops of 1921 and 1927 are less typical because of changes in the proportion of stocks stemmed.

When production exceeds consumption and stocks accumulate, as during the last four or five years, estimated disappearance is lowered by allowing for losses in re-drying. When production is deficient, disappearance estimates are revised upward.

Corrections for yearly fluctuations become particularly important when attempting te detect turning points in disappearance or consumption figures. For example, the old method of calculating disappearance shows a decrease of seven million pounds from 1932 to 1933. The new method indicates an increase of about eight million pounds. Independent figures on cigarette consumption increased about eight per cent between these two periods and those for manufactured tobacco, another important outlet for burley, decreased about two per cent. These figures would substantiate some increase in disappearance between 1932 and 1933.

Between 1916 and 1917 the old basis indicates a decrease of 8¾ million pounds while the adjusted basis gives a decrease of 16¾ million. The revisions in 1915 production emphasize this difference slightly. From 1921 to 1922 disappearance on the usual basis decreases about eight million pounds while disappearance on the refined basis increases nine million. The revisions in 1921 production tend to minimize this difference.

(2) The second effect of adjustment of storage reports is to correct for a definite downward trend in the proportion of stocks reported as stemmed. During the first four years for which reports are available,

[1] It is understood that the U. S. Bureau of Agricultural Economics is contemplating the use of more refined and perhaps more exact conversion factors, based upon reports from companies which have entered tobacco marketing agreements with the secretary of agriculture.

1912 to 1915, the proportion of burley tobacco stocks reported as stemmed ranged from 30 to 34 per cent of the total. During the last four years, 1930 to 1933, the range has been 11 to 14 per cent. While this change has been fairly gradual, a few sudden changes have taken place.

Another way of illustrating this trend is by studying the ratios between unadjusted and adjusted stocks figures. Adjusted stocks for the four years 1912 to 1915, averaged 26.7 per cent larger than unadjusted stocks. During the last four years, 1930 to 1933, however, adjusted stocks have averaged only 17 per cent larger than reported stocks.

The effects of reports of stemmed tobacco upon equivalent unstemmed stocks is well illustrated by comparing the reported stocks as of October 1, 1916 and 1917, with adjusted stocks on the same dates. The unadjusted stocks differ by 8,273,000 pounds, but the adjusted ones, by only 838,000 pounds. In 1916 about 31 per cent of the reported stocks were stemmed while in 1917 only a little more than 21 per cent were so reported.

(3) A tendency for stocks to become larger relative to disappearance is quite pronounced in burley tobacco. Adjustment of stocks reports corrects for the error due to this factor. The upward trend of disappearance is slightly less when calculated on a farm weight basis, therefore, than when calculated in the usual manner.

Burley tobacco has been selected for the purpose of illustration because adjustments for this type are relatively simple. This tobacco is used almost entirely for domestic manufacture and is re-dried for storage. For such types of tobacco as flue-cured, fire-cured and the dark air-cured types which find important markets abroad, other factors must be considered. If exports remained relatively constant from year to year, little difficulty would result in estimating total disappearance unless an attempt were made to subdivide this into domestic and foreign disappearance. Some adjustment in the reported weights of exports then would be necessary. Annual exports are not uniform, however, which necessitates a knowledge of foreign stocks to determine true disappearance. Data on foreign stocks are not readily available.

Some types of tobacco are not re-dried for storage and therefore may differ from burley in moisture content. Even those types which are re-dried vary considerably in moisture content as well as in loss of weight from stemming. It is possible also that only part of the carry-over of some types will have been re-dried and part not. Allowance for these and perhaps other factors, such as the make up of stocks as to grade and quality, will be necessary before satisfactory adjustments can be made for each type of tobacco.

While the need for adjustments in reports of stocks of tobacco undoubtedly is greater than in other products, it is hoped that this discussion will suggest the possible need for similar adjustments in the carry-over figures for other commodities.

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A BASIS OF FARM INVENTORY VALUES FOR FARM ORGANIZATION AND EFFICIENCY STUDIES

The computation of practically all commonly used measures of farm earnings or farm returns involves the use of inventory valuations. An increase of inventory value is considered as a receipt and a decrease as

an expense. Interest on the farm investment is included as an expense in most computations of labor and management returns. In case a capital return is computed in terms of an interest or percentage rate, the inventory value is the base on which this rate is calculated. Farming as a business is characterized by a relatively large investment in fixed and circulating capital. This is particularly true of livestock and general farms. It is apparent therefore that the methods used in making inventory valuations may affect very materially the measure of earnings in the computation of which these values are used.

Violent fluctuations in farm prices during the past few years have served to focus attention on the importance of selecting a basis for inventory valuations in accordance with the purpose for which the inventories are to be used. Measures of farm earnings are commonly used to indicate the quality of the farm organization and the efficiency with which the farm operations are conducted. In periods of violently fluctuating prices, it is easily possible that fluctuations in inventory values resulting from changes in the price level may largely obscure the effect of organization and of operating efficiency.

A study of the basis of inventory valuation used by different workers in the farm management field reveals a rather wide range in practice. In some cases, each item of farm property is valued at its current market price at the inventory date. Obviously this method is adopted if the main objective is a study of changes in net worth. The opposite of this is a system of valuation whereby the same prices are applied to the same inventory items at the beginning and end of the year. In this way, the effects of price changes are eliminated and the inventory reflects changes in physical quantities of goods. The dollar is used merely as a common denominator for combining the various items that make up the farm inventory. In actual practice, most farm inventories represent some practice intermediate between these two extremes. Changes in real estate values are seldom reflected in farm inventories used as a basis for computing farm returns. In valuing machinery and equipment and other relatively permanent items, changes in market prices are quite commonly ignored. On the other hand, current market prices are quite generally applied to feeds and supplies and to market stock.

In order to illustrate the change in farm earnings that results from a change in the basis of inventory valuation, some farm earnings data are presented in Table 1. These figures are from accounts kept on a group of 35 dairy farms in southeastern Minnesota for the five years 1928 to 1932. These farms were included in a farm management service project. Operator's labor earnings are used as the measure of financial success. The same relative results would be obtained if labor income or labor and management wage had been used. The first method of inventory valuation was to use the current market price for all items including real estate. Earnings computed on this basis are shown in the first column. Since this period was characterized by a large net decline in prices, the average inventory loss per year was $2,469 per farm, with much larger losses in 1931 and 1932 more than offsetting gains in 1928 and 1929. The average loss for the period was made up as follows: land, 71 per cent; buildings and improvements, 8 per cent; livestock, 14 per cent; feeds and supplies, 6 per cent; and machinery and equipment, 1 per cent.

The second method of inventory valuation involved the elimination of changes in values due to changes in price levels. The current market price for each item was used at the beginning of each year and the same price applied to the corresponding items in the closing inventory. The only decreases in value under this method would result either from a decrease in physical quantities or from deterioration due to age, ordinary wear and tear, or similar causes. As a matter of fact, there was an inventory increase of $103 per farm per year. This was the result of new buildings and improvements, new machinery, an increase of livestock,

TABLE 1. COMPARISON OF OPERATORS' LABOR EARNINGS AS COMPUTED WITH DIFFERENT INVENTORY BASES

Farm number	Acres in farm	Average annual earnings, 1928–1931		
		1 Inventory reflects full change in price level	2 Inventory reflects partial change in price level	3 Inventory reflects no change in price level
1	132	$1,004	$3,607	$3,835
2	220	−495	1,699	2,126
3	227½	−1,408	1,583	2,121
4	200	−939	1,559	2,032
5	198½	−320	1,530	2,068
6	110	680	1,373	1,612
7	450	−3,750	890	1,878
8	122½	258	880	1,099
9	372	−6,040	838	1,514
10	117½	−45	829	1,067
11	240	−2,069	796	1,442
12	156	−543	779	1,011
13	160	−2,400	738	999
14	130	362	724	994
15	93	−230	687	872
16	224	−2,500	654	1,300
17	110	−601	608	940
18	160	−702	594	956
19	160	−1,317	558	709
20	240	−1,928	537	1,003
21	240	−4,270	520	1,474
22	163	−1,181	452	703
23	80	−312	418	601
24	248	−1,753	367	731
25	160	−1,245	342	559
26	80	−1,036	215	350
27	320	−2,057	197	731
28	78	−202	195	260
29	240	−2,209	167	850
30	212	−472	150	486
31	145	−1,454	87	302
32	160	−1,575	−54	173
33	158	−1,833	−190	178
34	200	−1,985	−193	168
35	240	−3,119	−487	−102
Average	187	−1,362	676	1,058

higher crop yields in 1932 than in 1927 and hence larger inventory carryover in 1932, and a general increase in intensity of operation. The new additions to the investment more than offset the normal depreciation due to use. Earnings computed on the basis of these inventory values are shown in the last column.

The third system of inventory valuation was intermediate between the other two and as such is representative of common practice in farm accounting. Land and land improvements were valued on the same price basis at the beginning and end of each year. In order to keep the real estate values in line with current market prices, adjustments were made between the closing inventory of one year and the opening of the next.

Such adjustments were made between the years 1930 and 1931, and 1931 and 1932. Since the level of machinery prices changed little during this period, no change in the level of inventory price values was made.

The base value of work horses and milk cows was the value at which they first appeared on the inventory. Changes from year to year did not reflect changes in the price level but merely changes due to age, development, and use. There was one exception to this in case of cows. By the end of 1931, the inventory value of cows was so far out of line with their market value that inventories the first of the year 1932 were made on the basis of current market prices, a considerably lower figure than that appearing on the inventory at the end of 1931. Other livestock were valued on the basis of the market price at inventory time. The same was true of the value of feeds and supplies. The average net decrease in inventory per farm was $267. It would have been much larger had it not been for the considerable increase in physical quantities previously mentioned. The decrease actually was much larger than this in 1931 and 1932, there having been increases in 1928 and 1929.

A careful study of the earnings data for the individual farms as shown in Table 1 brings out some striking variations in the relative ranking of farms in the three columns. There is considerable correspondence between the ranking in the second and third columns. Farm 21 is the only one that shows a wide difference. A large swine enterprise on this farm bore a heavy depreciation as did also a large quantity of seed grain. There is, on the other hand, little correspondence between the ranking of earnings for individual farms in columns 2 and 3 with those in column 1. Only Farm 1 bears the same relative ranking in all three columns. Farm 2 which ranks second in columns 2 and 3 drops to eleventh place in column 1. Farm 9 which ranks ninth in column 2 and eighth in column 3 drops to last place in column 1. In general, it is the large farms whose rank in earnings is relatively lower in column 1. This is due to the fact that a decrease in land values was the largest element of depreciation and hence the large farms suffered most heavily. Obviously, the change in the value of real estate is by far the most important factor affecting the earnings of these farms as shown in this column. The effect of factors of organization and efficiency is greatly obscured if not completely concealed in most cases.

These data stress the importance of selecting the basis for inventory purposes in line with the use to be made of the inventories. If they are to serve in the computation of farm earnings to be used to measure the effect of farm organization and efficiency factors, as is the case with most farm accounting studies, they should be so computed that the effect of other factors will not overshadow those selected factors. Change in prices is an important factor, the effect of which is to be excluded. Inventory decreases due to price fluctuations do not in general indicate weakness in the farm organization nor do price increases due to the same cause necessarily indicate strength. Over a period of years, the price increases will approximately balance the decreases unless the long-time trend of prices is consistently upward or downward. This balance, however, in no way, assists in avoiding the obscuring effect of price changes on farm inventory changes and hence on farm earnings when the earnings for the individual years are analyzed separately.

The authors are aware that this method of applying the same prices to the same inventory items at the beginning and end of the year does not solve all the problems involved in adapting farm inventories to use in computing measures of farm earnings. It does not even eliminate all the difficulties arising out of violent fluctuations in prices. Inequalities may arise if there is much variation in the time of marketing any product or of purchasing large amounts of feed or feeders among the farms studied. This is especially true if part of the farmers market that product just before the close of the year and others hold it over until soon after the opening of a new year, or similar differences of time occur in purchases. The error involved may be approximately corrected by applying the uniform inventory price to all purchases and sales, adjusted of course for quality or grade. This would still tend to cover up the advantage gained by farmers who exercise superior judgment in adjusting their production to normal seasonal price trends, but the obscurity in this respect would be much less than that prevailing when the effects of violent changes in inventory prices are permitted to enter. Possibly some method could be applied which would permit the seasonal and quality variations to remain as fluctuations about the uniform prices adopted.

In a dairy farming area such as that from which the records in Table 1 were obtained, these adjustments would be unnecessary. Seasonal trends of production are fairly uniform among farms. Practically all products to be marketed are sold as produced and there is little variation in feed held over from one year to another except as production varies from year to year.

It is not always easy in a farm accounting study to eliminate the effect of changing price levels. This is especially true if the farmers are taking the inventories as is the case with most projects of the farm management service type or with the usual extension farm accounting project. The farmers are keenly interested in the effect of changing prices particularly if they are heavily in debt. They are interested in their net worth, as well as in the effect of organization factors on earnings. This, in many cases, necessitates recomputing at least a portion of the inventory values in order to eliminate the effect of price changes. It really involves computing the inventory on two different bases. The authors are convinced that this extra work may be well worth while if one is studying the effect of organization and efficiency factors on farm earnings. They, however, are sufficiently acquainted with human nature to suspect that some research workers who would readily agree with them during a period of falling prices may forget the importance of this adjustment as price levels trend upward. It is equally important in both cases.

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ECONOMIC READJUSTMENTS IN THE DAIRY AREA IN DELAWARE

The dairy area in Delaware is located in the northern half of the state. In reference to the Philadelphia fluid milk market it is located in the 51 to 80-mile zones. The dominant type of soil is the Sassafras

loam. This is a fairly heavy soil. The average size of farms is about 200 acres. However, farms ranging from 350 to 400 acres are not uncommon. The average size of the dairy herds is 13 cows but many herds have from 20 to 25 cows. Approximately one-third of the income is derived from the sale of fluid milk. However, about two-fifths of the land is in wheat and about one-third of the income is from the sale of wheat. Acreages of wheat ranging from 100 acres to 150 acres per farm are not uncommon.

North central Delaware along with the northeastern portion of Maryland lie in the heart of the eastern wheat belt. This wheat belt, in addition to the areas indicated, includes northern Maryland, northern Virginia, and southeastern Pennsylvania. It appears to be a paradox that an area located so near the eastern metropolitan markets should devote so large a portion of the land in growing a staple product like wheat. The question is often raised, why do not these areas shift to the growing of the more ready edible food crops such as fruits and vegetables? With these crops, eastern farmers would not meet the keen competition of the West and Northwest as they do in growing wheat.

The farmers in the eastern wheat belt have learned this through the school of experience and would gradually shift to other cash crops if such crops were available. However, the heavy soil is eminently adapted to the growing of wheat and is poorly suited to the production of vegetable crops. Evidence of this fact is seen in southern Delaware. With the beginning of the lighter soils in southern Delaware the growing of fruits, vegetables, and melons becomes a specialized industry.

It is significant that during the past one and one-half decades the acreage of extensive crops in the dairy area in Delaware increased slightly and the acreage of intensive cash crops has decreased slightly. The acreage of extensive crops per farm has increased from 164 acres in 1914 to 173 acres for the period 1928-1930. The acreage of intensive cash crops per farm has decreased from 7 acres in 1914 to 4 acres in the period 1928-1930.

The increase in the acreage of extensive crops is due largely to the increase in the acreage of wheat. The acreage of wheat per farm increased from 64 acres in 1914 to 71 acres in the period 1928-1930. This is true despite the fact that the acreage of wheat in the other areas of the state has been decreasing. In addition to wheat, the chief extensive crops grown in the dairy area are field corn and mixed hay. The acreages of field corn and of mixed hay have remained fairly uniform. These crops are used almost entirely as feed crops.

The decrease in the acreage of the intensive cash crop apparently is due, first, to the fact that in the production especially of cannery tomatoes, the chief intensive cash crop in the area, Delaware farmers are meeting strong competition from the lower-cost-of-production areas in the Middle West. Second, during recent years the prices of many cannery crops have been unsatisfactory. This is due, in part, to the low prices and good condition in which southern grown fruits and vegetables have been put on the northern markets during the winter months. Third, the development of the fluid milk market has made it less necessary for farmers to depend on the intensive crops as a source of income.

The only readjustment of consequence which has been made in the cropping system to meet the feed requirements of the dairy herds is in the acreage of alfalfa hay grown. The acreage of alfalfa hay, although still

small, has almost doubled since 1914. There has not been a marked increase in the number of cows kept per farm. The average of 12 cows per farm in 1914 increased to 16 cows by 1924, and decreased to 13 cows by 1928-1930. The increase in the number of cows per farm up to 1924 apparently was the dairymen's response to war-time fluid milk prices. The decrease in the number of cows per farm from 1924 to 1928-1930 was due to an effort to readjust the size of the herds to the most economic unit under the level of post-war prices. The working of the dairy cycle also doubtless had an influence.

The significant readjustments which have been made in the dairy area are in the management of the herds and the form in which the dairy product is sold. The amount of milk or milk equivalent sold per farm increased from 38,914 pounds in 1914 to 67,185 pounds in 1928-1930. This increase was due almost entirely to the increased production per cow. The amount of milk sold per cow increased from 3243 pounds in 1914 to 4904 pounds in 1928-1930. The amount of purchased grain fed per cow increased from .33 tons in 1914 to .70 tons in 1928-1930. In 1914 the purchased feed was largely wheat bran; in 1928-1930 it was balanced dairy rations. The increased milk production per cow, then, has been due to feeding more and better concentrated feed, more alfalfa hay, and doubtless to a better grade of cows.

In 1914, 13.8 per cent of the farmers sold no dairy products, 9.2 per cent sold butter, 52.4 per cent sold cream, and only 24.6 per cent sold fluid milk. At the present time the dairy herd is an important source of income on every farm included in this study and every farm is selling the product in the form of fluid milk. This is the response dairymen have made to the growing demand for fluid milk in the near-by metropolitan areas.

The economic readjustments which have been made in the dairy area in Delaware, during the past one and one-half decades, then, have not been in a significant shift in the cropping system. It is true there has been a slight increase in the acreage of extensive crops grown, especially wheat. There has been a slight decrease in the acreage of the intensive cash crops grown, especially cannery tomatoes. There has not been a marked change in the size of the dairy herds.

The significant readjustments which have been made during this period are a decided increase in the milk production per cow, the feeding of more and better concentrated feed, the growing and feeding of more alfalfa hay, and a shift from selling the major portion of the dairy product in the form of butter and cream to the universal marketing of the product as fluid milk.

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BIBLIOGRAPHY OF AGRICULTURAL ECONOMIC LITERATURE

Dr. Sigmund von Frauendorfer, Librarian of the International Institute of Agriculture in Rome, presents in succeeding numbers of Berichte über Landwirtschaft issued by the Reichsministerium für Ernährung u. Landwirtschaft and beginning with Volume 17, No. 4, 1933, a bibliography of agricultural economic world literature. This is an ambitious undertaking and is designed to cover a field hitherto only spasmodically and more or less adequately handled. He finds himself faced at the outset

by two major problems, the exclusion of the unessential, the valueless, and the irrelevant, on the one hand, and the inclusion of all that is pertinent and worthwhile on the other. He realizes the limitations of the individual mind in making such a choice, and admits that his decisions are open to criticism by the users of the bibliography.

His aim is to cover the field designated by the Germans as Agrarpolitik, which includes land settlement, agricultural credit, cooperation, insurance, trade, prices, taxation, agricultural statistics, etc.; farm management including land valuation, labor, and bookkeeping; agricultural history; agricultural geography; legal questions connected with agriculture; agricultural education; and rural sociology.

All languages will be represented. But in the case of a few of the less well-known, such as Finnish, Hungarian, and some Slav languages, a careful selection of material has seemed advisable unless, as is often the case, the title and a summary of the contents are given in one of the generally known languages.

In addition to books, periodical articles are included which are original contributions, or which contain information of permanent interest to the economist or other interested expert. Information of an ephemeral nature, such as is contained in trade or crop reports is excluded. Texts of laws are not included as they are readily accessible in official gazettes and other sources.

Titles are used as they appear on the publication, and in the original language in the case of German, English, French, Dutch, Italian, and Spanish. Titles in other languages are translated into German and enclosed in brackets unless they appear on the publication in another easily read language.

The form of entry is that used in the library of the International Institute of Agriculture in which Anglo-American cataloguing rules prevail. Thus official publications appear under the name of the country followed by that of the issuing bureau or office. In the case of periodical articles the source is given with volume, number, pagination, and date. Abbreviations of names of periodicals are used as approved by the International Institute of Intellectual Cooperation and the Deutscher Verband Technisch-Wissenschaftlicher Vereine.

The bibliography begins with 1932 and supplements the material for that year supplied in the Bibliographische Umschau last published in v. 17, no. 2 of Berichte über Landwirtschaft.

Realizing the importance of the classification of his subject, which covers the whole field of agriculture in all its economic aspects, the compiler has decided to base his division into subjects on a very detailed and comprehensive system of classification of the whole science of agriculture, which he has elaborated with a view to the later compilation of a bibliography of agricultural literature of world-wide scope. As this system of classification in three languages and with an alphabetical index of 7,000 keywords has not yet appeared in its final form, the titles in the present list are not yet accompanied by their allotted symbols which will be supplied later. This bibliography is continued in succeeding issues of Berichte über Landwirtschaft.

A. M. Hannay

Bureau of Agricultural Economics

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BOOK REVIEWS

Calculation and Interpretation of Analysis of Variance and Covariance, by George W. Snedecor, Ames, Iowa: Collegiate Press, Inc., 1934, pp. 96. $1.00.

This excellent little book will be useful to all who wish to use the analysis of variance in an examination of a problem or seek to secure more knowledge of the nature of the procedures. It consists of the presentation of twelve examples carefully selected to show the principal problems arising in the use of the analysis. The numerical computations are completely illustrated and illuminating comments are made regarding the interpretation of the results. The plan of presentation is straightforward. Part I deals with cases involving a single criterion of classification, Part II deals with cases involving two criteria of classification, Part III with cases of three or more criteria of classification, and Part IV with the use of the procedures in the analysis of covariance. A useful table is included for testing the significance of the results. Adequate references are provided to the more technical literature for those who wish to pursue their study further.

The analysis of variance has been used most widely in biometry, but will be useful in many problems arising in agricultural economics. The question which it attacks is whether a set of mean values resulting from a classification of data in a particular way could result from chance or whether the resulting means as a group are significantly different. The general proposition upon which the procedure rests is that if we have a homogeneous population which is normally distributed and we know its standard deviation, we are able to calculate the distribution of means of samples of various sizes drawn from it. Knowing what our means would be in the case of a homogeneous population, we may then compare our actual means with those of our hypothetical case to determine whether the actual means might have arisen from chance variations. If there is a considerable probability that the means resulting from our classification arose from chance then we must conclude that our classification is non-significant and the data are homogeneous from the viewpoint of our classifying factor. If there is a considerable probability that the variation in our means could not arise from chance then our classification is significant and we must consider this factor in our conclusion with respect to the problem. The tests are worked most readily in terms of squared deviations and if we are dealing with a case of significant differences among means we have made a separation of the total variation in the series into two portions. One part of the variability may be ascribed to the operation of forces which produce in general different values of the variable in the various classes into which we have sorted our cases. These elements we call heterogeneous. The remainder of the variation is expected to show no significant variation in its parts regardless of how we classify our cases. This latter is said to be homogeneous. It is evident that this is important information in any problem. If the analysis indicates we are drawing observations from a homogeneous universe, we may treat any random sample uniformly and indicate our errors specifically. If our sample comes from a heterogeneous universe, we may be led into error regarding our conclusions, unless we can provide a consistent probability of drawing sam-

ples from the various heterogeneous sections. If we have some knowledge of the classifying factor, we may generally improve our results by proper sampling, and with only an hypothesis or complete lack of knowledge so design our experiment or research as to yield a maximum possible variety of classifications to test the homogeneity. Elimination of the heterogeneous elements may enable us to combine the remaining homogeneous portions of several groups of data to produce a larger group of homogeneous data resulting in an improved estimate of the experimental error. Economic data are likely to have many heterogeneous elements and devices to distinguish these elements lead to considerable improvement in the precision of results.

A few examples will indicate how the analysis may be used. The major applications will be in judging the importance of certain classifications. Suppose for example that following a milk survey the question arises as to whether income is a factor in determining the rate of milk consumption in a family. The data are grouped by income classes and the variance analyzed with the probable result that there are significant differences in the average consumption of the income classes. Steps may then be taken to provide a statement of the relationships.

Another sort of problem may arise over the question of how far one may generalize from the results of certain data. For example, we might wish to evaluate the reports of crop correspondents of acreage changes on their own farms as an indication of total acreage changes. Since crop correspondents may be a better type of farmers their reports may show somewhat different changes than the ordinary run of farmers. There also may be involved the question of similarity of acreage changes on large and small farms. Assuming reports were secured from other than crop correspondents for the comparison in question, the data would be sorted into crop correspondent and other farms and these into various sizes of farm groups. These groups would then be tested to see whether significant differences were present. If the crop correspondent farms differed significantly in indication of acreage changes then this fact should be allowed for in the annual estimate of acreage changes. If large and small farms differ in changes then attention should be paid in the sample of correspondent farms to a proper proportion of large and small farms. Questions may also arise over the precision of results. For example the local price reports of a state may be grouped into areas and the areas found to have significantly different average prices. The probable errors of the mean in any district may then be estimated from the variance remaining in all the districts after allowance for the differences in the means among the various areas. Or suppose the problem involved the relationship of egg prices in retail stores to the qualities of eggs which had someway been rated numerically and a straight line regression fitted. The scatter about the regression may now be analyzed to see whether in grouping the deviations significant differences still appear in the means of the classes which are unexplained by the regression. These examples do not exhaust the possibilities but may serve to indicate the wide range of usefulness of the analysis.

Perhaps the most important contribution of the procedure is a by-product in that it forces on the investigator a consideration of the character of his data and the necessity of considering a variety of hypotheses. There is a strong presumption that an investigator who has used the

analysis of variance on his problem has considered that problem more carefully than one who has not used the method.

W. C. Waite

University of Minnesota

The Future Comes—A Study of the New Deal, by Charles A. Beard and George H. E. Smith. New York: Macmillan, 1933. Pp. xii, 178.

On the jacket of this book the question is raised, "Can America go back to Coolidge's age of innocence, Wilson's new freedom, or Mark Hanna's full dinner pail?" The authors in reply say: "The past does not return; the future comes."

This little volume is of value for two purposes; (1) it summarizes the New Deal developments up to November 1933, (2) it describes and appraises the New Deal philosophy. It is not necessary to discuss here the record of New Deal events which are tersely summarized. Later studies will no doubt present the New Deal movement in more detail and with greater perspective.

The interest of this study lies in its philosophical approach to the problems underlying the visible manifestations of the New Deal. The authors do not look upon the New Deal as a break with the past, but more simply as a culmination of past developments. In the words of the authors ". . . President Franklin D. Roosevelt repudiates the New Freedom in economy, accepts the inexorable collectivism of American economy in fact, and seeks to work out a policy based on recognition of the main course of our economic history." It is President Roosevelt's attempt to readjust public policy to "the main course of our economic history" which "gives a semblance of reality to the use of the term 'New' in connection with his 'Deal'."

Professors Beard and Smith maintain that attitudes and principles are of more significance than laws in studying and understanding the New Deal. For that reason the views of New Deal leaders such as the President, Donald R. Richberg, General Hugh Johnson, Frances Perkins and Professor Berle have been carefully winnowed as a basis for arriving at a 10 point summary of the Recovery Program. To paraphrase briefly, the New Deal (1) accepts combination in industry; (2) recognizes labor; (3) develops cooperative methods; (4) alters price and wage competition; (5) curbs secrecy and manipulation; (6) recognizes agricultural inequality; (7) discourages speculation, or in other words favors stabilization; (8) accepts state responsibility for the unemployed poor; (9) fosters a greater degree of nationalization in banking and other basic industries; and (10) emphasizes the home market.

The analysis of the authors indicates that the success of President Roosevelt in making relatively permanent the measures of the New Deal will depend on his ability to keep the support of the middle class. However, it is maintained that the forces of opposition will have to offer a substitute for the New Deal for the old deal is obsolete. Beard and Smith say "—the prospect before the party of opposition on the day of triumph over the New Deal will not be simple or pleasing."

So the authors conclude that the New Deal should be looked upon as "a broad and flexible frame of reference for directing immediate thought and action," or "as the beginning of a transition."

With reference to agriculture the authors believe that "the lines of advance seem to point in the right direction—which is to overcome in terms of the twentieth century the curious and mystifying paradox of want within the very presence of abundant supply."

Joseph G. Knapp

North Carolina State College

World Sugar Production and Consumption, by C. J. Robertson, London: John Bole, Sons and Danielsson, Ltd., 1934. Pp. 142. 5s.

The avowed purpose of this book is to give "a comprehensive survey of the world's production of sugar from both cane and beet and with emphasis on the economic-geographical aspects." The contents of the book might, roughly, be divided under four main subjects. The first three chapters deal with an outline of the world trade in sugar and the general factors pertinent to the production of cane and beet sugar. Climate, soil, and labor are discussed in their relation to the competitive production of sugar in various regions of the world.

The seven chapters which follow the first three, sketch in rapid succession the conditions in the various sugar-producing countries which are grouped on a basis of political affiliation rather than geographical location. The chief factors, both favorable and unfavorable, influencing the production of sugar and the general competitive position of each country are summarized in a very clear and concise manner. From these chapters, one can secure a clear picture of the competitive position of the more than 25 sugar-producing countries and regions considered. The brief discussion of the government ordinances restricting the utilization of land for export crops in Java should be of special interest to students of land use and economic planning. The outline of the British sugar subsidy act of 1925 should be of special interest to students of the tariff.

Chapter eleven gives a brief survey of the refining industry of the world, and reviews in some detail the advantages and disadvantages of refining sugar in tropical and temperate zones. In this connection, the conclusion is reached that, "the great advantage possessed by the refineries of the temperate zone of location in the heart of what is at present the principal market make it probable that the latter will retain their predominance, though the expansion of tropical markets may insure continued development of the new processes in these countries."

The two concluding chapters discuss the main factors affecting the demand for sugar and the prospects of world production and consumption. The author's analysis of per capita consumption in temperate and tropical regions leads him to the conclusion that, "while it is certainly true that the countries with high rates of sugar consumption are in the cold temperate zone and that the countries of the tropical and Mediterranean zones have low rates of consumption, examination of the facts shows that these differences may be explained by factors belonging to quite other categories." Among these, taxation, standard of living, dietary custom, and purchasing power may be mentioned as being most important. It is also pointed out that the per capita consumption of sugar is higher in countries that are predominantly urban than in countries that are predominantly rural in character. Taxation has undoubtedly been an important factor in reducing or holding in check the consumption of sugar

in many countries. The general conclusion was reached that, "the countries with higher rates (of per capita consumption) are roughly those with a relatively highly urbanized population, high standards of living and low rates of taxation of the commodity, the countries with lower rates of consumption are predominantly agrarian, with generally low standards of living and high rates of taxation." The author points out that the development of consumption will vary in different countries depending on the factors of special importance there, but suggests the use of "well-directed propaganda" as a means of increasing consumption generally.

With reference to the expansion of area of production, the general conclusion was reached that, "taking the sugar lands as a whole, the possibilities of areal expansion are very great but are mainly in the cane-growing countries."

The book can be recommended as giving an excellent review of the conditions in the various sugar-producing countries of the world with special emphasis on the competitive situation with respect to various countries and regions. The value of the book is enhanced by the inclusion of statistics at the close of each chapter and in the appendix.

Lippert S. Ellis

Oklahoma A. and M. College

American Farm Policy, by Wilson Gee. New York: W. W. Norton and Company, 1934. Pp. ix, 146. $1.50.

This book is one of a popular series dealing with social topics of current interest. Its theme of central interest is the "New Deal" as it affects agriculture. Since this is true, it follows that considerable attention is also given to the farm problems as such. The lay reader will undoubtedly welcome this very readable presentation by which he may quickly gain some understanding of the perplexing and continuing farm problem.

Naturally, in so brief compass, many phases are inadequately discussed, and in some instances, brevity may result in the reader failing to grasp what the author intends to impart. An instance is the brief and brusque treatment, in the opening chapter, of the earlier farm policy in America. Practically, "rapid expansion and exploitation" accurately epitomize and almost actually reproduce the very brief discussion on this point. The third chapter entitled, "Harding, Coolidge and Hoover," may be cited as an instance for possible misunderstanding, since the discussion of the farm policies of these administrations might easily be classed as unfair by either the careless or prejudiced reader.

With chapter four, "The New Deal," the discussion becomes strictly up-to-date. Salient features of the present administration's farm policy are stated to be recognition of: (1) the need of sound national planning for agriculture in the future; (2) the economic interdependence of all phases of national life as expressed in "pre-war parity basis" between farm and other prices; (3) the fact that farm prices cannot be maintained without intelligent, voluntary cooperation in the control of production; (4) the hardships visited upon farmers in the past because of the unstable value of the dollar; and (5) finally of the fact that although the present program tends toward nationalism, there must soon be a restoration of export outlets for American farm products.

An outline of what the National Administration is doing for agriculture; an appraisal of the efficacy, limits and possibilities of planning for American agriculture, and a statement of the author's farm philosophy appear in the concluding five chapters. The author, although not a zealot of the present administration, believes that large opportunities exist for planned agricultural production, and that the farm program of the present administration is definitely a step in the right direction. His farm philosophy may be stated as a belief in the desirability of continuing small owner-operated farm units with voluntary, cooperative planning as the mode of American agriculture.

Critically, one may say that, although cleverly done, the quoting of others is overdone. Also, many will question the emphasis placed upon experimentation as a practicable and desirable means for mapping and planning social action. Just as a few years earlier, statistics and statistical method were all the vogue in social science technique, it now appears likely that for some time there will be equal emphasis upon experimentation.

C. J. Bradley

University of Kentucky

Corn and Hogs under the Agricultural Adjustment Act, by D. A. FitzGerald, Washington: The Brookings Institution. 1934. Pp. 107. $0.50.

This book is the first of an informational series of six publications planned by the Brookings Institution dealing with different commodities under the agricultural adjustment act. It gives information on what has been done in connection with the corn and hog program up to March 1, 1934, covering, in six sections, the corn-hog situation responsible for starting the program, the steps in the development of the program, the emergency hog marketing campaign carried on in the fall of 1933, federal distribution of meat for relief purposes, corn loans, and the corn-hog production control program.

The book does not attempt to appraise the federal corn-hog program. It gives information on how the program was developed, including some important features proposed and discarded, as well as those finally adopted. It also presents pertinent figures regarding measurable quantities involved in connection with carrying out the earlier parts of the program with a minimum of estimates on controversial matters pertaining to the effects of the program.

The book gives the impression of being fact-presenting and non-partisan. The author has had access to many sources of information from which he has done a creditable job of extracting significant facts. In addition, a few original calculations are presented. Footnotes on references and explanations are numerous and helpful. The material in the book is well organized and presented in a clear and interesting manner. Probably no where else is there available, in such brief form, the important items of information needed by a person wishing to understand and form judgment regarding the corn-hog program as planned and operated up to the spring of 1934.

Lynn Robertson

Purdue University

Agricultural Readjustment in the South: Cotton and Tobacco, by David F. Cavers, Ed., Durham, N.C.: Duke University Press, Law and Contemporary Problems, Vol. 1, No. 3, June 1934, pp. 257-397, $.60.

This is a symposium on the agricultural readjustments now in process in the southern cotton and tobacco belts. It is maintained by the writers that the case of southern agriculture is one of clinical importance in which a great agricultural region has offered itself as perhaps the greatest experimental laboratory that has ever been set up. The South has virtually compelled the nation to institute a temporary uniform agricultural policy to supplant the numerous abortive attempts which have been made to control the surplus problem by both state and voluntary agencies. No doubt the demand for compulsory control of cotton and tobacco production has been born of a realization that the individual farmer is helpless and that voluntary cooperation is futile as a means of ridding ourselves of the surplus problem.

Rupert B. Vance has drawn a picture of the socio-economic organization of southern agriculture in which he emphasizes the human element at stake in the A.A.A. program. However, other than saying that production control has no solution for the cotton tenancy problem, and that the prospects from the standpoint of standards of living, race relations, community conditions, and social welfare are not inviting he does not attempt to say what the social consequences of a restrictive agricultural program may be. Paul W. Bruton attempts to discover what the effects of acreage reduction upon the tenant farmer will be. He finds that the tenant problem in this connection is a mess of entanglements because the legal status of the tenant is scarcely the same in any two states, and that different classes of tenants are being affected in different ways. The tenant's chances to lose through reduction are just about in inverse proportion to his equity in the crop he produces. There is no provision for disposing of the labor taken out of agricultural production. The tenant's protection in the Bankhead act and in the contracts issued under it is veiled in vague, esoteric, evasive language which finally places him at the mercy of the landlord. Paul J. Kern criticizes the Bankhead act on the ground that it has not affected the export price of cotton, and that its apparent success has been the result of the devaluation of the dollar. He says further that if the act succeeds in improving the condition of the farmer it will be simply by the creation of a consumer's scarcity and not by giving society more and better cotton. G. W. Forster is able to defend the act only by viewing the problem of surpluses in the aggregate and forgetting that it is an open defiance of the law of comparative advantage in production which benefits the inefficient producer at the expense of the efficient ones. He then denies categorically, and without adequate proof, that the act fosters the destruction of wealth, that it benefits one group to the detriment of others and that it is a hazard placed upon our export trade in cotton. He confuses the intentions of the act with its most probable results, and maintains that it must be judged on whether or not it will effect a more economical use of land, labor and equipment. By what stretch of the imagination it can be assumed that through this specific act a more economical use of land, labor, and equipment is in course of accomplishment, the reviewer does not know.

John Hanna traces the history of agricultural cooperation in tobacco.

He points out that high percentages of tenancy and illiteracy and low incomes among tobacco growers have been major obstructions to cooperation. Also the perishability of tobacco itself is a factor which aggravates the marketing situation. Attempts at monopoly control of market supplies have proved futile because of lack of control over member producers as well as non-members. He concludes that production control is the nub of the whole agricultural problem, although he seems to view the problem in toto rather than as one of division of labor between submarginal and supermarginal farmers and areas. Joseph G. Knapp and L. R. Paramore describe flue-cured tobacco developments under the A.A.A. The marketing position of flue-cured growers is weakened by the farm tenancy problem, the maturing of debts at the time of curing, the need for expensive redrying if the crop is held, the labor costs of production which are high and fluctuate inversely with yields, and the fact that the quality of the product and hence the price also vary inversely with the yield per acre. These factors stimulate over-production. The reduction campaign has been successful. However, the present program has made no provision for improvement in the basic marketing machinery for the flue-cured crop.

David F. Cavers, in an article on production control by taxation, and Douglas B. Maggs in a discussion of congressional power to control cotton production, seek to answer some of the important judicial questions involved in agricultural readjustment as it is now being undertaken. Cavers gives a plainly illuminating picture of the machinery through which the Bankhead act for cotton and the Kerr act for tobacco control must work if at all. Maggs asserts that comment upon the constitutionality of congressional acts necessarily takes the form of prediction. However, he maintains that the Bankhead and the Kerr acts violate none of the three specific constitutional limitations upon the taxing power of Congress, that they do not violate the due process clause of the fifth amendment, and that in the light of precedent there is little likelihood that they will be invalidated on the ground of unconstitutional delegation of legislative power. Recent decisions appear to render inapplicable an attack on the ground of unconstitutional use of the power of Congress to regulate commerce. These two discussions are particularly enlightening because they set forth the legal aspects of the acts concerned in language which an ordinary layman can understand.

Finally, Gordon W. Blackwell describes the problem of rural relief in the South. The incidence of relief work among farm owners seems to fall most heavily upon the small scale truck farmers of the coastal counties. The real problem of rural rehabilitation is centered among the displaced tenants and farm laborers. Agricultural readjustment has not provided for these classes of people, and the rehabilitation program of the F.E.R.A. is still in its infancy. There is no doubt a necessity for a long time program to cope with this situation in the South.

On the whole, one is impressed by the rather prodigious effort of these writers to set up a complete outline of the problem of agricultural readjustment in so little space. There is little that is superfluous, and except for a chapter on the impending social consequences of the program not much should be added. In the reviewers' opinion it is equally as important to formulate an idea of where we are going as to keep a log book on where

we have been. It is not just to criticise an author for not doing a thing he started out to do, unless it can be proved that he has not fully comprehended his task. These authors have done their assignments well. However, it seems that they have dealt with their topics as if the riddance of past and present difficulties were sufficient. On the basis of developments as they now stand, what promise does the future hold for the agriculture of the South? Frankly, I, for one, do not know.

O. D. Duncan

Oklahoma Agricultural and Mechanical College

The Agricultural Situation in 1932-33 (Economic Tendencies in Agriculture—Markets and Prices—International Conferences—Action Taken by the Governments and by Voluntary Organisations—Economic Conditions of the Farmers), by the Staff, International Institute of Agriculture, Rome, 1934. Pp. viii, 580. 25 liras.

This is the fourth of a series of annual issues beginning with the agricultural year 1929-30. The organization of the material is much the same as that of the two preceding volumes. The subject matter deals with:

1. An analytical discussion of the present situation.
2. Supplies, prices, and international movements of the more important agricultural staples.
3. International conferences dealing with agriculture.
4. Governmental farm relief measures in the various countries.
5. Activities of voluntary organizations on behalf of agriculture.
6. Economic conditions of agriculture in various countries.

The greater portion of the 580 pages of material is classified according to commodities or to countries. This treatment makes it a work of reference rather than one of interest for general reading. The chapter on international conference treats separately each of ten meetings.

To the American reader it is interesting to note, perhaps, that 5 pages only are devoted to government relief measures in the United States. These are largely given over to a description of the provisions of the agricultural adjustment act and the farm credit act. The New Deal was hardly under way by the end of the period under review. The 1933-34 issue should have much to say in regard to the agricultural happenings in this country.

The first chapter, "The Economic Tendencies in World Agriculture," is an exception to the above generalization as to the arrangement of subject matter materials. It is an appraisal of some of the economic impacts of the present trend toward national isolation. The section is of more than specialized interest. In it the authors trace the gradual and persistent dissolution of the competitive system and the substitution for it of a deliberately planned economy bounded by national frontiers. Nations are striving to become nationally self-sufficient. To do this governments are showing a willingness to sacrifice the competitive ideals of economy and efficiency in order to establish economic balance within the nation.

The most noticeable casualty is the marked reduction in international trade. The authors maintain that this tendency toward national isolation inevitably reduces national incomes and lowers standards of living. Only a restoration of international trade, they hold, will permit the maintenance of existing standards of well-being.

Large scale planning is a characteristic of the times. But national planning conflicts with a competitive world economy. Hence it seems necessary to devise some other system for promoting cooperation between the planned nations if international economic intercourse is to be restored to acceptable levels. A new system is emerging. Bilateral trade agreements involving preferences, exceptions to the most-favored-nation clause, and a wider use of the principle of reciprocity is a part of the new vehicle. The main emphasis, however, is placed not so much upon the method of bringing about international cooperation as it is upon the need for such cooperation. Standards of living will go and remain below normal levels until it is obtained. Economists generally and lay readers in large numbers will have little difficulty in agreeing with the thesis developed in this chapter.

The reviewer considers *The Agricultural Situation* to be a valuable addition to the list of publications put out by the International Institute of Agriculture.

Asher Hobson

University of Wisconsin

The Flight from Agriculture. Amount and causes of the rural migration loss, presented on the basis of more recent data. Peter Quante. Berlin: Kurt Vosinckel. 1933.

(*Editor's Note:* The following abstract of the book by Peter Quante bearing the above title, which has been prepared by Dr. Marie Jasny, is included among the book reviews because of its interest to agricultural economists.)

Quante's main purpose in this study is a refutation of the theory upheld by some authorities, especially Sering and Oppenheimer, that the flight from the country is the consequence of concentration of big estates. This theory provided the underlying philosophy of the post-war German settlement laws and, though contested by some agricultural scientists, has never before been thoroughly refuted. Quante undertakes to prove the falsity of this theory on the basis of the great statistical material on migration gathered by the Prussian Statistical Office for about a century, and in manipulating it uses a new method of his own invention.

The first part of the book deals with the opinions on the reasons for flight from the country heretofore prevailing. The authors referred to are: von der Goltz—the star witness cited by Oppenheimer, who even baptized certain rather accidental remarks of his as "Goltz's law"—Sering, Oppenheimer, Broesicke, Hainisch and Mombert.

(1.) Von der Goltz dealt with the reasons for migration from the country in two treaties of 1874 and 1893. He was convinced that the problem might be confined sectionally to the northeastern provinces of Prussia, and professionally to the agricultural workers. His main thesis was that "the distribution of estate ownership is of decisive importance for the strength of emigration and internal migration to the cities." The reason lay, in his opinion, in the loosening of ties between estate owners and workers after serfdom was abolished and a "free" agricultural workers class had developed. A worker who must expect to be driven from his present residence at any time chosen by his employer decides much more readily to take a further step and emigrate to a foreign land or to another section of his own country.

Checking the statistical data brought forward by von der Goltz, Quante finds that the assertion of parallelism between the proportionate share of

big estates and the strength of the emigration (external and internal) holds only for the figures of the northeast, but fails when the western provinces are drawn into the picture. For most of the remote period investigated by von der Goltz (1862-71) the greatest amount of emigration is found exactly in those western regions where the proportionate share of big estates is lowest. Likewise doubtful is von der Goltz's conviction that the overwhelming majority of migrants consists of agricultural workers, although the data are not sufficient to prove the contrary.

In justice to von der Goltz, Quante admits that he also refers to other factors than the big estates, especially to the sectional degree of industrialization and to the quality of the soil. A somewhat amusing feature is his recommendation to restrict by law the use of threshing-machines. But after all the influence of the big estates remains his principal issue.

(2.) The most influential of all German authors on agricultural migration is the Nestor of agricultural scientists, Max Sering. In a treatise published in 1893 he called attention to the necessity of a far-reaching settlement policy. The statistical material produced in this study is won by the well-known method which consists in comparing the status of population at different census dates and in adjusting the difference for the natural movement of population. The balance represents the net loss or gain by migration. This method, of course, furnishes but net results; the two currents of emigration from and immigration into a defined area are submerged in the net figures.

Sering divided the Reich area according to the amount of migration losses or gains into four great sections, the first three of which—eastern, northwestern and southern Germany—are loss areas, while the fourth—a combination of Berlin and its suburbs, the "Hansestädte" Hamburg, Bremen, Luebeck, the former kingdom of Saxonia, the Rhine Province and Westphalia—is the only gain area. The east, according to his table, sent 75.04% of its birth surplus into the gain area, the south 30.61% and the northwest only 13.15%. Admitting that a certain migration loss of the rural sections in favor of the industrial areas is always necessary in a country the soil of which is completely occupied, he considers the huge amount of migration indicated in the east as greatly surpassing the natural proportion and as a sign of disease of the social body. Like von der Goltz, he finds the reason in the unfortunate distribution of soil ownership in the east, ascribing that at least 4/5 of the migrants are agricultural workers without land property.

Feeling that the above mentioned study was methodically too rough, Sering undertook twenty years later to base his thesis on more elaborate statistical material. Using the same method, he went into detail by giving the figures for the single Prussian "Kreise" (smallest administrative units, each province containing about 30-50 of them). The period covered by this comprehensive study is 1871-95. Sering considers this material as an unassailable proof of his contention that it is the big estates which are responsible for the evacuation of the east.[1] Quante restricts himself in this part of the book to minor objections concerning the great number of exceptions from the rule and to the lack of discrimination between "rural" and strictly "agricultural" population.

[1] It must be kept in mind that all studies on German migration are hampered by the fact that the east, the section of big estates, has little industry, whereas the west is simultaneously the section of small farmers and highly developed industry.

(3.) Franz Oppenheimer makes the issue of flight from the country the center of his whole theoretical system. He upholds the thesis that the "soil monopoly" of the big landlords is the underlying reason for the "capital relation," i.e. for the exploitation of the whole working class, both agricultural and industrial. Consequently an overthrowing of the present distribution of land ownership in favor of small units run by family labor is the key position for the solution of the economic troubles caused by capitalism.

According to Oppenheimer, industrial production as a rule follows the law of increasing returns, agricultural products the law of decreasing returns. Thus the increase of agricultural production is slower than that of industrial production, thereby causing a certain amount of migration from rural into industrial areas. But this rule operates in a highly different way under different kinds of distribution of land ownership. Where there is a soil monopoly in the form of a concentration of big estates, the rise in prices of agricultural products favors the landowner exclusively, not the worker. The difference of "economic pressure" between country and towns thus becomes much greater than with pure peasants' areas and consequently gives birth to a much larger migration. Land proletarians flow out in masses, ruin the wage of city workers or at best hinder their advance. As a "normal" migration loss the figure of 13 per cent of the birth surplus is considered by Oppenheimer.

(4.) Opposed to the above-mentioned authors, others see the causes of the internal migration in a complexity of motives. Broesicke, Hainisch and Mombert are quoted. Broesicke points to the much higher fertility of the agricultural population, and to the restricted labor capacity of agricultural production. Michael Hainisch, the former Austrian State President, has written a comprehensive study dealing with the flight from agriculture (not from the country, as Hainisch conceives the problem from the occupational instead of the geographical point of view), as a world phenomenon. The international point of view protects him from errors originating in a merely national or even local standpoint. His work is especially remarkable for its criticism of the prevailing theories. He assails those who believe that the agricultural worker leaves his profession in order to participate in the higher cultural life of the towns, as this motive would not explain the great shifting from the agricultural to the industrial profession without change of residence. Neither can the hope of advance in an industrial job be the true motive, for opportunities to advance are equally scarce in the industrial field. The argument of big estates is confronted with the experience that flight from the country as a mass phenomenon is observed also in peasant countries such as German Austria, Switzerland, France and certain parts of England (Lincolnshire).

It is, in his opinion, the immediate change from agricultural to industrial labor itself which is considered as a decisive advantage. Higher wages, shorter hours of labor, less physical strain, greater stability of employment, greater independence and a higher social position are the components of this appreciation. According to his conviction, the remedy against flight from the country lies in improved conditions, both economic and cultural, for agricultural workers.

Mombert is more of an eclectic than a decided representative of one of the combating theories, tending rather to the explanation that the phenom-

enon necessarily arises from the restricted labor capacity of agriculture and from the impossibility of enlarging agricultural production beyond defined limits, in face of the opposite fact in industry.

The second part of the study contains the presentation of the statistical material on "amount and geographical origin of the flight from the country." The period chosen is the time from 1880-1910, because only for this pre-war period are the statistical data available on which the author bases his own computations of the so-called "real" migration. Quante makes a double set of computations for this period, the first one following the usual differential method—used particularly by Sering—resulting in what he calls the "seeming migration"; the second one according to his own method, leading to quite different results. The first big table gives the birth surplus and the migration gain or loss, both absolute and in per cent of the birth surplus, for the two periods 1880-1895 and 1895-1910 by Prussian Kreise. In order to check Sering's and Oppenheimer's theories, he then combines these Kreise into five groups according to the proportion of agricultural areas (including pasture) owned by big estates (estates with 100 ha. and above) or by smaller estates respectively. In group I the big estates own 50 per cent and more. In group II the big estates own the relatively major part of the area, i.e. more area than any other of the established statistical size groups. In group III the estates with 20-100 ha. own the absolutely or relatively largest share, in group IV those with 5-20 ha., and in group V those under 5 ha. The interesting result of this computation is the hardly disturbed regularity[2] of the correlation asserted by Sering and Oppenheimer: *the emigration* (the term is used for both external and internal emigration) *rate quite regularly decreases with decreasing size of estates.* The interesting tables furnishing this result are given on pp. 152, 153 and 154 of Quante's book. (It should be noticed that the table on p. 154 only includes the Kreise with a net migration *loss.*)

Nevertheless, the conclusion Quante draws from this table is merely that it proves how the assertion of the causal relation between flight from the country and big estates could be upheld and almost universally accepted for such a long time.

As he sees the problem not in the geographical leaving of agricultural areas, but in the shifting from agriculture to other professions, he uses the censuses of occupation as the basic material. He aims at ascertaining the real loss of agricultural population both out of the birth surplus of the agricultural population, and, as far as it exists, out of the "stock." For this purpose he proceeds as follows:

He uses the figures of the censuses of profession of 1882, 1895 and 1907, using the average of the first two as average for the period 1880-95, and the average of the latter two as average for the period 1895-1910. A difficulty arises over separate figures on vital statistics for the agricultural and the non-agricultural population. Prussian vital statistics group births and deaths according to "rural areas" and "towns" but not according to the profession of the parents. Quante overcomes this obstacle by applying the surplus rate of the rural areas to the agricultural population and, vice versa, the surplus rate of the towns to the non-agricultural population. This procedure seems rather daring, especially for the western parts of

[2] The greatest irregularity is the very low emigration rate of the areas with large peasants' estates (20-100 ha.) predominating.

Germany, as the industry of this most highly industrialized section is in great part located in the so-called rural areas, and even more so as the Prussian statistics (in this point differing from the Reich, which draws the limit at communities of 200 inhabitants) considers as "rural" every community with the administrative character of a "Landgemeinde" (rural community) however big—some amounting to 10,000 to 20,000 inhabitants—and considers as town every community with the administrative character of a town, however tiny. As great parts of the western industry are located in such huge "rural" communities, this part of Quante's computations must be considered as somewhat doubtful. He himself admits that the method is more appropriate to the east, where "rural" and agricultural population coincide but for a very small percentage. Nevertheless, some computations of my own show that even major errors in the figures of birth rates do not seem to alter the resulting series on emigration in any decisive amount.

Having thus computed the absolute figures of the agricultural birth surplus, Quante adds them to the actual loss of agricultural population between the census dates—where there is a gain in population, it is subtracted from the birth surplus—and thus arrives at the "real" figures of shifting from agriculture to other professions. The absolute figures are expressed both as percentages of the birth surplus, which they greatly surpass in most instances, and of the theoretical population at the end of the period, i.e., the population that would have accrued if no emigration or shifting without change of residence had occurred during the whole period. *Both series of figures for the single Kreise give no evidence whatever of a correlation with the proportionate share of big estates.*

The presentation of the data lacks a summarizing table for the groups of Kreise according to the proportionate share of big, middle and small estates, similar to that given for computation I. Quante confines himself to refuting Sering's assertions for certain areas, thereby stressing the polemical rather than the objective character of his work. A rough computation made by myself for the first 15-year period, however, delivered the following result:

Groups of Kreise according to predominant size of estates	*Emigration in % of birth surplus 1880-1895*
Group I	111.30
II	135.29
III	119.56
IV	127.60
V	118.11

There is, indeed, no relation between the prevailing size of estates and the phenomenon of professional loss of agricultural population.

The confronting of both results proves that the loss of agricultural population is independent of the size of farms, being equally large in areas of middle and small peasants. The main difference between the eastern domain of big landowners and the western small peasants' area is that in the more highly industrialized regions the loss of surplus and stock is absorbed by industry without change of residence or with residential shifting within the narrow borders of the individual Kreis, or else that the loss in agricultural population of a Kreis is made up for by immigration

into the same Kreis by non-agricultural, mainly industrial elements. It is a shortcoming of the method that it is unable to determine which of the two explanations is valid.

In order to make up for this defect to some extent at least, Quante uses a third method, namely to ascertain which percentages of the non-agricultural population, at the date of the census of 1907, were reported to be born in the same place (steady elements) or had come from a short distance within the same Kreise or the same province (short-distance migration), or had come from without the province (long-distance migration). It is revealed that industry and trade are recruited to a higher degree from people born in the same place or in the same Kreise or province in the west than is the case in the east. This proves the alleged tendency of western industry to absorb high shares of the agricultural population of its own or nearby areas.

As to the thesis that the east contributes mainly unskilled men, whereas the west furnishes the skilled workers, Quante proves with the figures of the 1907 census that the eastern contribution consists in great part of skilled workers. Furthermore, little more than 50 per cent of the eastern emigration is recruited from among agricultural workers, the balance being "independent" people.

The third part is entitled "Flight from the country as a consequence of the smaller labor capacity of agriculture." From the first two parts of the book it is obvious that Quante attributes the phenomenon of flight from the country to the limited ability of agriculture to make use of man labor. This part of the study is devoted to the theoretical deduction of this assumption.

Quante demonstrates by means of schematic examples the working of the mechanism which is composed of (1) the numerical growth of population, and (2) the development of agricultural and industrial productivity per man, which results in varying amounts of rural-urban migration and in a different relation of exchange between agricultural and industrial products. Under the assumption that the shares of the social product are equal and consist of food and non-food units in the same proportion for all members of the economic society, he arrives at the result that an increase in productivity of agricultural labor which surpasses the increase of population reduces the number of persons occupied in agriculture, whereas a (relative) decrease necessarily must raise it. This is especially true because the demand for agricultural products is limited, whereas that for industrial products is theoretically unlimited. This part is mainly a polemic against Oppenheimer, who, though admitting that the tendency of increasing prices for agricultural products under the law of diminishing returns can be overcompensated by technical progress, seemingly fails to draw the proper inferences from this restriction.

Quante arrives at the conclusion that the internal "flight from the country" must be the greater, the greater becomes the productivity of agriculture per man; but that conversely the emigration to foreign countries increases with decreasing productivity of agriculture in the native country.

Only under conditions where, while the population increases, agriculture has not yet learned to meet the increased food demand with the same amount of man labor, will some part of the rural birth surplus be able

to remain in the agricultural profession. Where this is not the case, the birth surplus and even more or less large parts of the "stock" are compelled to give up the agricultural profession "under penalty of sinking back into a standard of living overcome long ago."

The last part is devoted to the settlement movement in Germany. The view expressed in superficial statements that two or even four million men could be settled in the country if the big estates were entirely abolished proves futile. Quante arrives at a figure of half a million at most, bosed on data of the settlement in East Prussia and Pomerania. Using Wollenweber's figure, amounting to an increase in density of 50 per cent, he would arrive at 670,000 men. But he sets forth some important criticisms against Wollenweber's method, especially the selection of his material from among such estates as were extremely thinly populated before settlement set in. On the other hand, if the aim were to create only middle-sized estates, it would be necessary to combine the smallest units into bigger ones, thereby detracting much from the value of the measure for condensing the rural population in total. Moreover, any larger measure of the kind will be accompanied by a lowering of the standard of living in the country, or else by huge burdens to be borne by the population in general.

Marie Jasny

Washington, D.C.

NEWS ITEMS

Annual Meeting

The Twenty-fifth Annual Meeting of the American Farm Economic Association will be held at Chicago, beginning at noon, Wednesday, December 26 and closing at noon on Saturday, December 29. Association headquarters will be at the Palmer House.

American Institute of Cooperation

This year's session of the American Institute of Cooperation was held at Madison, Wisconsin, on July 9 to 14, inclusive. The program was sponsored by the Wisconsin College of Agriculture and the Wisconsin Council of Agriculture. The latter is a federation of Wisconsin agricultural cooperative organizations. According to Secretary Charles W. Holman, the session, both from the point of view of the character of the program and that of the attendance was, comparatively speaking, a very successful one.

The high-lights were the addresses by Henry A. Wallace, Secretary of Agriculture, and Glenn Frank, President of the University of Wisconsin. Secretary Wallace was preceded on the Wednesday evening program by Asher Hobson of the Wisconsin College of Agriculture, who pointed out the desirability of recapturing America's foreign markets for agricultural products. Mr. Wallace continued the discussion of this problem. He suggested that rather than follow an extremely nationalistic course, or the opposite, an internationalistic one, we ought to follow a planned middle course, which means making some tariff concessions to foreign countries, with a minimum amount of reduction in agricultural production. Such concessions are now possible under the new tariff law. He stated that among the articles which should be made subject to a tariff reduction are those produced in this country under monopolistic circumstances, and certain ones which, comparatively speaking, are not very important, for example, wine. The American cotton, tobacco, and fruit growers, and the pork producers would be benefited most by such concessions. Mr. Wallace concluded by admitting that the agricultural adjustment act is not perfect and must, undoubtedly, be changed from time to time in the light of experience. President Frank stated that in his opinion cooperative effort is the only alternative to regimentation in agriculture.

Many, if not most, of the important problems which agricultural cooperatives are facing were discussed at other sessions of the institute. Probably the one that caused the greatest amount of discussion, was the role occupied by cooperatives in the agricultural adjustment program. H. R. Tolley discussed the principles underlying the relationship of the cooperatives to the A.A.A., on the morning of the first day. Mordecai Ezekiel explained the part that cooperation must play in the production control program. Paul S. Armstrong of the California Fruit Growers Exchange, related the experiences of his organization in production control. The A.A.A. came in for some criticism, however, on the part of Don N. Geyer of Chicago, Secretary-Manager of the Pure Milk Association, and Emerson Ela of Madison, General Manager of the Northern Wisconsin Cooperative Tobacco Pool.

Francis W. Peck, Cooperative Bank Commissioner of Washington, ex-

plained the operation of the Federal Banks for Cooperatives. Other subjects discussed were the financing of cooperatives and the cooperative marketing of dairy products, live stock, wool, and tobacco. J. E. Wells, Deputy Cooperative Bank Commissioner of Washington, took up the problem of financing and budgeting operating capital, and A. H. Lauterbach, Chief of the Dairy Section of the A.A.A., discussed joint selling arrangements for merchandising dairy products.

Cooperative buying, and the production credit corporation also had places on the program. Special subjects were, Milk Marketing Agreements and Milk Price Plans, Operating Cooperatives Under State Boards of Control, the Place of Cooperatives in Long Time Planning, and a Comparison of Agricultural and Industrial Cooperative Practices. Speakers upon these subjects were Jerome Frank, Washington, General Counsel of the A.A.A., Leland Spencer, New York State College of Agriculture, Ithaca, E. G. Nourse of the Brookings Institution, Washington, and O. B. Jesness, University of Minnesota, respectively. Still another subject that was discussed was the question of whether or not milk should be made a public utility. F. K. Schneider of Winnipeg, Secretary-Treasurer of the Winnipeg District Milk Producers Cooperative Association, spoke on Canadian experiences in marketing milk under public utility regulations.

The meeting of the Wisconsin Council of Agriculture held on Saturday, the fourteenth, was the last one of the session. L. J. Taber, National Master of the Grange, spoke on the necessity of Cooperation for Recovery, and Dean Chris L. Christensen of the Wisconsin College of Agriculture, pointed out the high-lights of the session from the point of view of Wisconsin cooperatives. Lack of space prevents a complete listing of the speakers, and a fuller discussion of the arguments each advanced.

Third International Conference of Agricultural Economists

The third international conference of agricultural economists was held at Bad Eilsen in Schaumburg-Lippe, Lower Saxony, Germany, August 26-September 2, 1934, about 200 persons from 20 countries participating. The German delegation was naturally the most numerous group. Several countries were represented for the first time. The principal papers were delivered in English or in German from the platform and simultaneously through a system of ear phones connected with a microphone before a reader were heard in German or English. Thus the language difficulties were slight.

The principal topics of the addresses were "The World Agricultural Crisis" by Dr. Max Sering; National Policies in Agriculture, including forms, stages and limits of planned economy, by several speakers each describing his own country's scheme; German's Experience in War Food Administration, by Freihem von Falkenhausen; Germany's present scheme of adjustment of supply and prices; Farm Organization and the Social Problem, as to family farms and as to collectivist and corporation farming; International Cooperation in Agriculture; Currency Problems, Debt and Credit Problems; Forces of Self-Working Readjustment of Supply and Demand; New Tendencies in International Trade Policy; and Possibilities of the International Planning of Production. Dr. Zörner described the agriculture of Germany. In opening the conference the President, Mr. L. K. Elmhirst, spoke of the purposes of the conference emphasizing the necessity for a scientific approach to the complex problems be-

setting all countries today and the usefulness of mutual good fellowship. In this spirit the papers were delivered and the numerous small discussion groups were conducted.

Prior to the conference, nine visitors were conducted on a week's tour of Northern Germany by Dr. Zörner and Dr. Rolfes, both of Berlin, visiting farms of the larger scale producing grain, livestock and potatoes. After the conference, 25 visitors were conducted through Southern and Western Germany, visiting the smaller diversified farms prevailing in that part of Germany. During the conference, farms in the neighborhood of Bad Eilsen were visited.

ANNUAL CONFERENCE OF WESTERN FARM ECONOMICS ASSOCIATION

Held at Berkeley, California, June 1934

The annual conference of the Western Farm Economics Association, for 1934, was held at Berkeley, California in June. During the first three days, the meetings were held jointly with the Land Planning Section of the Association for the Advancement of Science. The program considered in detail four subjects, namely, Land-Use Planning, Farm Credits, Relation of Research to Extension work and Agricultural Adjustments. The subjects and speakers were:

Land Use Planning

"Objectives in the Land-Use Planning Program of the United States Government"—L. C. Gray, Planning Division, Agricultural Adjustment Administration.

"The Land Utilization Survey of Britain"—L. Dudley Stamp, London.

"Relation of Studies of Forest Influences to Land-Use Planning"—Walter C. Lowdermilk, U. S. Forest Service.

"Types of Economic Research Needed as a Basis for Land-Use Planning"—M. R. Benedict, University of California.

"Problems and Methods Involved in Coordinating Research and Administration Activity in Land-Use Planning"—C. L. Alsberg, Stanford University.

"Political Science Aspects of Land-Use Planning"—R. C. Ball, University of California.

"Sociological Problems Involved in Land-Use Planning"—Paul Eke, University of Idaho.

"Planning the Land for the Future"—L. Dudley Stamp, London.

"Land-Use Planning in the Sierra Nevada Foothills of California"—David Weeks, University of California.

"The Use of an Index of Soil Productivity in Classification of Lands"—C. F. Shaw, University of California.

"The Place of Zoning in Land-Use Planning"—S. B. Show, U. S. Forest Service.

"Relationship of Type of Farming Studies to Land-Use Projects"—C. L. Holmes, Bureau Agricultural Economics.

"The Land-Use Program for South-Western United States"—P. V. Cardon, Utah Experiment Station.

"Operation and Administration of the Public Domain under the Taylor Bill"—L. A. Moorhouse—Colorado State College.

Farm Credit

"Federal Credit Agencies"—Willard D. Ellis, Farm Credit Administration, Berkeley, California.

"Financing Cooperative Associations"—E. A. Stokdyk, Farm Credit Administration, Berkeley, California.

"Basic Data Needed for Land Appraisals"—W. U. Fuhriman, Utah State Agricultural College.

"Some Aspects of the Farm Credit Program in Montana"—M. H. Saunderson, Montana State College.

"Farm Debt Adjustments"—H. C. M. Case, Farm Credit Administration.

Research and Extension Projects

"The Relationship of Rainfall and Run-off in the Arizona Rivers"—A. B. Ballantyne, University of Arizona.

"Cattle Ranch Organization"—R. T. Burdick, Colorado Agricultural College.

"Essential Features of a Planned Agricultural Rehabilitation Program"— R. R. Renne, Montana State College.

"Extension Economic Program"—L. M. Vaughn, Extension Service, Washington, D.C.

Agricultural Adjustments

"The Place of Research Agencies in the Formulation of Agricultural Policies"—E. A. Starch, Montana State College.

"The California Agricultural Prorate Act"—H. E. Erdman, University of California.

"The Agricultural Codes"—Francis Wilcox, University of California.

"Some Phases of Social Economic Planning"—George M. Peterson, University of California.

Papers presented at the Land Planning Section of the Association for the Advancement of Science meetings and the association meetings will be published in the Proceedings of the Western Farm Economics Association.

Officers elected for the coming year were: President, A. F. Vass, University of Wyoming; Vice-president, Rex Willard, Washington State College; Secretary-Treasurer, W. Preston Thomas, Utah State Agricultural College.

Dominion Marketing Board

The Dominion Marketing Board, authorized under the Natural Products Marketing Act, passed by the Parliament of Canada last July, was appointed early in August. Dr. H. Barton, Deputy Minister of Agriculture has been selected as chairman, and Dr. J. F. Booth, Agricultural Economics Branch, Dept. of Agriculture, Mr. C. B. Davidson, Dominion Bureau of Statistics, Dr. A. K. Eaton, Dept. of Finance, and Mr. A. Gosselin, Agricultural Economics Branch, Dept. of Agriculture are members of the Board. Dr. W. C. Hopper, formerly of Cornell University and the Division of Extension, Bureau of Agricultural Economics, Washington, D.C., has been appointed secretary to the Board. Members of the Board will continue to carry on their regular duties in their respective departments of the Government at Ottawa.

The annual agricultural outlook conference of state and federal workers will be held during the week October 29 to November 4, at Washington, D.C. Four summer outlook reports prepared in the Bureau of Agricultural Economics were issued during August, covering the current outlook for sheep and wool, poultry and eggs, dairy products, and beef cattle.

A new Department of Rural Organization and Marketing has been organized in the College of Agriculture at the University of Georgia. The work in agricultural marketing, land economics, farm credit and farm prices has been transferred from the School of Commerce and that of farm management from the Department of Agronomy to this new department. Professor J. William Firor, Agricultural Economist, School of Commerce, has been appointed Professor of Rural Organization and Marketing and head of the department; and Mr. J. W. Fanning, County Agricultural Agent, Houston County, Georgia has been appointed Associate Professor of Rural Organization.

During the summer the South Building of the Department of Agriculture was made ready for occupancy and many units which have been housed in outlying buildings are now located in it. C Building, where the divisions of Farm Management and of Land Economics, Bureau of Agricultural Economics, have been working for more than a decade is being demolished to make way for Mall improvement.

Dr. Charles Josiah Galpin, in charge of the Division of Rural Farm Population and Rural Life, Bureau of Agricultural Economics, retired on June 30 after 15 years of service with the Department of Agriculture and 25 years of conspicuous service in the field of rural social planning. Dr. Galpin expects to devote his time to writing and lecturing from his home in Falls Church, Virginia, and to maintain contacts with workers in the rural social field as in the past.

Regional directors under the land-use program of the Agricultural Adjustment Administration were appointed as follows:
A. W. Manchester, Connecticut State College, Storrs, Conn.
Noble Clark, Wisconsin Agricultural Experiment Station, Madison, Wis.
L. A. Schoenmann, College of Agriculture, Urbana, Ill.
Carl C. Taylor, Washington, D.C.
W. A. Hartman, State College of Agriculture, Athens, Ga.
Dan T. Gray, College of Agriculture, Fayetteville, Ark.
S. E. Johnson, Nebraska Agricultural Experiment Station, Lincoln, Neb.
R. E. Willard, State Agricultural Experiment Station, Pullman, Wash.
P. V. Cardon, State Agricultural Experiment Station, Logan, Utah.

The Department of Agricultural Economics of the Agricultural Experiment Station of the University of Illinois is conducting an investigation of the St. Louis Milk Shed in cooperation with the Market Administrator under the United States Milk License for that area. The work will be under the immediate charge of Dr. R. W. Bartlett of the Department. Others in the Department who will assist are Messrs. T. R. Hedges and B. T. Inman. It is expected that the work will take about four months.

Former assistants in the Department of Agricultural Economics, University of Illinois, now connected with the following institutions in Germany are: Dr. Siegfried von Ciriacy-Wantrup, Department of Economics, University of Bonn; Mr. Tassilo Troescher, Reichskuratorium fuer Technik in der Landwirtschaft, Berlin; and Mr. Oswalt Vopelius, Landwirtschaftsrat, Berlin.

The following have been granted assistantships in Agricultural Economics and Farm Management at Cornell University for 1934-35: C. W. Pierce from Pennsylvania; Louis S. Drake, Michigan; Howard S. Tyler, Connecticut; E. W. Cake, Virginia; J. N. Efferson, Louisiana; T. N. Gearreald, Texas; and Karl Hobson, Idaho.

Appointments to the Department of Farm Economics, West Virginia, for the fiscal year 1934-35 include: Russell G. Ellyson, assistant extension economist; James L. Copeman, L. F. Herrmann and C. H. Bruce, assistants in Farm Economics.

Professor Don S. Anderson, Department of Agricultural Economics, University of Wisconsin, has been on the staff of the Dairy Section of the Agricultural Adjustment Administration at Washington, while on temporary leave from the university.

Mr. H. G. Anderson, Assistant in Marketing, North Dakota Agricultural College has been transferred for the present to the Extension Division as economic adviser.

Dr. W. W. Armentrout was recently promoted to the rank of farm economist at West Virginia. He has been acting head of the Experiment Station and Extension work in Farm Economics since July 1, 1933.

Mr. Byford Bain, formerly a student assistant in the Division of Farm Management, Department of Agricultural Economics, University of Illinois, has accepted a position with the Market Administrator under the United States Milk License in St. Louis.

Dr. Roy A. Ballinger, Professor of Agricultural Economics, Oklahoma A. and M. College, is cooperating with O. W. Herrmann and W. W. Fetrow of the Research Division of the Farm Credit Administration in an economic study of cooperative cotton gins in Oklahoma.

Mr. George T. Blanch, who has been doing post-graduate work at Cornell University for the last three years, has been appointed as associate professor in the Department of Agricultural Economics, Utah State Agricultural College, Logan, Utah, effective July 1, 1934.

Mr. Gordon Boals, Foreign Agricultural Service, Bureau of Agricultural Economics, has been transferred to the office in Berlin to take up the work of Mr. D. F. Christy who will return to Washington in December after 3 years service in Berlin.

Professor James E. Boyle, Cornell University, has returned from New Orleans, Louisiana, where he spent three months of his sabbatical leave writing an economic history of the New Orleans Cotton Exchange.

Dr. Marvin A. Brooker, Associate Agricultural Economist, Agricultural Experiment Station, Gainesville, Florida, has resigned to accept the position of Chief Statistician, Farm Credit Administration at Columbia, South Carolina.

Mr. Carl M. Clark, formerly assistant in Agricultural Economics at the University of Wisconsin, has resumed the teaching and research position he formerly held at the Alabama Polytechnic Institute, at Auburn.

Mr. Ralph H. Cole, Extension Economist, University of Nebraska, has been granted a leave of absence in order to permit him to accept a temporary appointment at Cornell University. His work is being carried on by Mr. Arthur G. George, formerly research assistant. Mr. Ramey Whitney, Nebraska, 1931, has been appointed research assistant.

Dr. J. S. Davis, a director of the Food Research Institute, Stanford University, has sabbatical leave for the academic year 1934-35. He will spend the autumn at the Brookings Institution, Washington, D.C., continuing his collaboration on the Brookings project for studying the operations under the Agricultural Adjustment Act. For the rest of the year his address will be 176 Main Street, Danielson, Connecticut.

Mr. Floyd DeLashmutt has been appointed to a position in Farm Management Extension work at Ohio State University.

Dr. A. A. Dowell, who has been on leave from his position as Superintendent of the Northwest School of Agriculture and Experiment Station, Crookston, Minnesota, while directing a livestock marketing study for the Bureau of Agricultural Economics, has returned to his duties at the University of Minnesota.

Mr. Selmer Engene has been appointed Extension Economist, University of Minnesota, while Spencer Cleland is on leave, working with the U. S. Department of Agriculture.

Dr. L. S. Ellis who has been on leave of absence since January 3, 1934 in the service of the Farm Credit Administration, returned to his position in charge of teaching and research in farm prices and agricultural credit at Oklahoma A. and M. College on September 1, 1934. During the absence of Dr. Ellis, his work at the college was carried on by Professor E. L. McBride, who has returned to the University of Wisconsin to resume his graduate study.

Mr. H. H. Erdmann, until recently a graduate fellow in agricultural economics at the University of Wisconsin, is now in Washington in the Dairy Section of the Agricultural Adjustment Administration.

Mr. Leon M. Estabrook, formerly associate chief of the Bureau of Agricultural Economics, and later director of the first world census of agriculture sponsored by the International Institute of Agriculture at Rome, was asked to make a special trip to Argentina late in July in behalf of the Secretary of Agriculture and the Agricultural Adjustment Administration, in connection with the World Wheat Agreement.

Associate Professor Walter Fuhriman, Department of Agricultural Economics, Utah State Agricultural College, has been granted leave of absence for the fiscal year to complete his work for a Doctor's Degree at the University of California.

Mr. Wiley Goodsell, University of Idaho, has been appointed a student assistant at Iowa State College for the coming year.

Mr. John J. Haggerty, a graduate student in Agricultural Economics at the University of Wisconsin, has accepted a position in the Agricultural Adjustment Administration at Washington.

Dr. F. A. Harper, who has been doing extension work with cooperative associations in New York during the past two years, has been appointed Assistant Professor of Marketing at Cornell University.

Dr. J. F. Harriott has resigned his position as Assistant Professor of Farm Management, Cornell University, to become Vice-President of the Production Credit Corporation at Springfield, Massachusetts. Since Dr. Harriott took charge of the work in farm cost accounts at Cornell in 1926 the number of farmers keeping complete sets of accounts in cooperation with the department has increased from thirty-two to seventy-four.

Mr. Marshall D. Harris, formerly of the Division of Farm Management, Department of Agricultural Economics, University of Illinois, has accepted a position with the Tobacco Section of the Agricultural Adjustment Administration.

Mr. E. B. Hurd, Associate Economist, Division of Farm Management and Costs, Bureau of Agricultural Economics is now stationed at Corvallis, Oregon, where he is cooperating with the Department of Farm Management of the Oregon Experiment Station in conducting a type-of-farming study.

Professor M. Slade Kendrick, Cornell University, is spending his sabbatical leave with the Agricultural Adjustment Administration and is working on special problems relating to processing taxes.

Dr. Joseph G. Knapp, of North Carolina State College, has joined the staff of the Cooperative Division of the Farm Credit Administration as Senior Agricultural Economist, In Charge of Research, Service and Educational work with agricultural cooperative purchasing associations. Dr. Knapp has been granted leave of absence by North Carolina State College.

Dr. C. E. Lively of the Department of Rural Economics, Ohio State University, has been granted a leave of absence until January 1, 1935 to serve with the Federal Emergency Relief Administration, Washington, D.C.

Professor Gabriel Lundy, formerly assistant professor, became the acting head of the Department of Agricultural Economics of South Dakota State College in June.

Mr. B. Florenz McCarthy, for a number of years in charge of the New York office of the Livestock Meats and Wool Division, Bureau of Agricultural Economics, has been brought to the Washington office to take charge of the meat grading work, formerly supervised by Mr. W. C. Davis, deceased.

Mr. J. B. McNulty, formerly Research Assistant in Agricultural Economics, University of Minnesota, has been transferred to the Extension Service to fill the vacancy caused by the resignation of Dr. W. L. Cavert, who has become statistician for the Farm Credit Administration at St. Paul.

Professor E. G. Misner, Cornell University, has been granted a sabbatical leave for the first term of 1934-35 and has accepted a fellowship from the C. R. B. Educational Foundation for study in Belgium.

Mr. R. I. Nowell, who has been at University Farm, St. Paul, working on a study of land utilization in northern Minnesota, has been transferred from the Bureau of Agricultural Economics to the Land Planning Section of the A.A.A., with headquarters at Madison, Wisconsin.

Mr. Paul O. Nyhus, agricultural commissioner, Foreign Agricultural Service, Bureau of Agricultural Economics, has been placed in charge of the office at Buenos Aires, and left for his new post July 21.

Mr. Cary D. Palmer, associate crop and livestock estimator, Bureau of Agricultural Economics, was transferred from the office at West Lafayette, Indiana, to Boston, Massachusetts, in July.

Mr. J. T. Palmer, formerly Research Assistant in Agricultural Economics, University of Illinois, has accepted a position with the Bureau of Agricultural Economics in Washington, D.C.

Dr. L. A. H. Peters, Agricultural Attache of the Netherlands Legation in Washington for the last seven years left Washington July 20 to take up similar work at Brussels, Belgium.

Mr. James D. Pope has been granted leave of absence from Alabama Polytechnic Institute and is assisting in the rural rehabilitation work of the Federal Emergency Relief Administration at Washington, D.C.

Professor E. L. Potter, Agricultural Economist in Charge, Division of Agricultural Economics, Oregon State Agricultural College, was granted a leave of absence for two months in order that he might assist with the formulation of the A.A.A. beef control program. Mr. L. R. Briethaupt, Extension Agricultural Economist was acting head of the Division of Agricultural Economics during Professor Potter's absence.

Mr. Harry E. Ratcliffe, Assistant Farm Economist, North Dakota Agricultural College, served as State Director of the C.W.A. Project F-6.

Mr. Mark Regan, formerly Research Assistant in Agricultural Economics, University of Minnesota, has been appointed Assistant Agricultural Economist in the Bureau of Agricultural Economics.

Dr. J. T. Sanders, Head of the Department of Agricultural Economics, Oklahoma A. and M. College, was on leave of absence working with Dr. L. C. Gray of the Division of Land Economics, United States Department of Agriculture during July and August. Dr. Sanders was engaged on a study of damages to crops and livestock in the Upper Columbia River Valley caused by fumes from Canadian smelters near the border of the State of Washington.

Mr. Burton D. Seeley has been transferred from the Division of Agricultural Finance, Bureau of Agricultural Economics, to the Consumers' Counsel, Agricultural Adjustment Administration.

Mr. Joseph H. Shollenberger, Foreign Agricultural Service, Bureau of Agricultural Economics, who has been in Europe for three years studying the demand for American bread grains and flour, and milling and baking practices, has returned to Washington, D.C.

Mr. Alvin H. Spurlock, formerly County Agent, Wakulla County, Florida, has been appointed Assistant Agricultural Economist at the Florida Agricultural Experiment Station.

Mr. Oscar Steanson, Division of Farm Management and Costs, Bureau of Agricultural Economics, has completed the field work of a cooperative farm organization study in the Piedmont and Coastal Plains areas of Georgia, and has returned to Washington, D.C.

Mr. Harry A. Steele, formerly assistant in Agricultural Economics at the University of Wisconsin, now has a research position in the Department of Agricultural Economics, South Dakota Agricultural College at Brookings.

Mr. R. O. Stelzer was employed for full time research in Farm Economics on the West Virginia Experiment Station staff beginning July 1, 1934. He has been devoting half of his time to research and half to farm management extension for the past several years.

Dr. P. H. Stephens has resigned his position as Professor of Agricultural Economics, in charge of Farm Management at Oklahoma A. and M. College to accept an appointment as chief statistician for the Farm Credit Administration for the office in Wichita, Kansas. He is being succeeded by Dr. Peter Nelson, formerly Extension Agricultural Economist.

Dr. O. C. Stine, in charge of the Division of Statistical and Historical Research, Bureau of Agricultural Economics, has been designated as official delegate to the General Assembly of the International Institute of Agriculture, to be held at Rome beginning October 22. Dr. Stine left New York August 16 to attend the International Conference of Agricultural Economists at Bad Eilsen, Germany, and spent the time after the conference visiting several other countries on the Continent.

Mr. Robert E. Straszheim, junior agricultural economist, Division of Crop and Livestock Estimates, Bureau of Agricultural Economics, was transferred from the office at Albany, New York, to West Lafayette, Indiana, in July.

Professor W. P. Thomas, head of the Department of Agricultural Economics at the Utah State Agricultural College, has been granted leave of absence to accept temporary appointment as Research Assistant to Regional Director P. V. Cardon of the Land Policy Section, Division of Program Planning, Agricultural Adjustment Administration. He will be located at the regional office, Utah State Agricultural College, Logan, Utah.

Mr. Harry Trelogan, Division of Agricultural Economics, University of Minnesota, is on leave to work with the Brookings Institution in its study of agricultural adjustment.

Professor Paul W. Wager, University of North Carolina, spent the summer period in the Bureau of Agricultural Economics in connection with the analysis and interpretation of data on farm tax delinquencies and tax sales gathered in the nation-wide C.W.A. study made by that Bureau in cooperation with State Experiment Stations.

Dr. S. W. Warren, Cornell University, will be on leave during the first term of 1934-35. Since June 1 he has been with the Farm Credit Administration in Washington, D.C.

Professor George S. Wehrwein of the Department of Agricultural Economics, Wisconsin College of Agriculture, is vice-president of the board of directors of the Forest Farm Homesteads, Inc. This organization has charge of the program of work outlined for Wisconsin by the Subsistence Homesteads Division of the Department of Interior. The corporation is set up for the purpose of moving isolated settlers who are located on poor land in the northern part of the state into compact agricultural communities near a federal forest where the land is good. Each such settler in addition to having a tract of land will be provided with from 100 to 150 days' work each year in the nearby federal forest.

Dr. Carl F. Wehrwein of the Department of Agricultural Economics of the University of Wisconsin, has been appointed Regional Land Planning Consultant of the National Resources Board for the Great Lakes Region, with headquarters at Madison, Wisconsin. He is on leave from the University.

Dr. V. R. Wertz of the Department of Rural Economics, Ohio State University, has been granted a leave of absence until April 1, 1935 to serve with the Farm Credit Administration.

Professor R. B. Westbrook, who formerly was associated with the School of Business Administration in Ohio University at Athens, on April 1 accepted a position with the Agricultural Economics Department at South Dakota State College.

Mr. Leslie A. Wheeler has been designated head of the Foreign Agricultural Service, Bureau of Agricultural Economics. He has been acting in charge of the unit since Dr. Asher Hobson resigned in 1931.

Professor R. H. Wilcox, Division of Farm Management of the Department of Agricultural Economics, University of Illinois, has been granted a leave of absence for one year beginning September 1, 1934 to pursue advanced work in agricultural economics at Cornell University.

Mr. Sylvan Warrington has been appointed Research Assistant, Division of Agricultural Economics, University of Minnesota.

Mr. E. A. Willson, Research Specialist in Rural Social Organization, North Dakota Agricultural College, is Assistant Administrator of the Federal Emergency Relief Administration for North Dakota and located at Bismark. He is assisted by Mr. Clyde Barks.

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